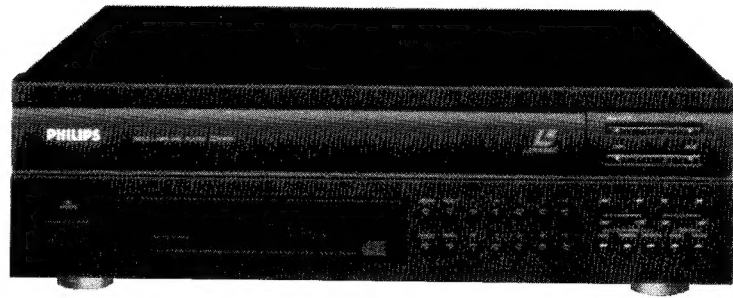


Service  
Service  
Service



45 607A

# Service Manual



- The LDP400/PAL is an advanced Multi Laser Disc player that accepts laser optical discs of all sizes, from 8 cm (3 inch) up to 30 cm (12 inch) with no need of an adapter. Disc type and size detection are fully automatic.
  - Plays all laser discs, CD video and CD discs
  - Full remote control operation.
  - 20 track or chapter programming.
  - Random play mode.
  - Multi-function FTD.
  - Edit function.
- Introduction date B periode 1991
- The optical pick-up assy is operating according the 3-beam tracking principle.  
Type number: KHS-130A  
Codenummer: 4922 691 30237
- Remote control: RC400E CDV code number: 4822 218 10381

(S)

Varning!

Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betakta ej strålen.

(DK)

Advarsell

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

(SF)

Varoitus!

Laite sisältää laserdiodin, joka lähettää näkymätöntä silmille vaarallista lasersäteilyä.

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

CLASS 1  
LASER PRODUCT

3122 110 03420


\*Pour votre sécurité, ces documents  
doivent être utilisés par des spécia-  
listes agréés, seuls habilités à réparer  
votre appareil en panne\*.



# PHILIPS

- I** Caution and warning  
Mounting instructions  
Standardisation
- II** Specifications
- III** Connection and controls
- IV** Disassembly procedures
- V** Adjustment procedures  
Abbreviation list
- VI** Blockdiagram  
schematic diagrams  
Lay-out of PCB's
- VII** Exploded views
- VIII** Partslist

### 3.1 SAFETY INSTRUCTIONS

- Safety regulations demand that the set be restored to its original condition and that components identical with the original types be used.  
Safety components are marked by the symbol .

#### - ESD



All IC's and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.

Keep components and tools also at this potential. For detailed information see "Handling ESD-sensitive components".

- A set to be repaired should always be connected to the mains via a suitable isolating transformer.
- never replace any modules or any other parts while the set is switched on.
- Use plastic instead of metal alignment tools. This in order to preclude short-circuit or to prevent a specific circuit form being rendered unstable.

### 3.2 SERVICING OF SMDs (Surface Mounted Devices)

#### 3.2.1 General cautions on handling and storage

- Oxidation on the SMDs terminals results in poor soldering. Do not handle SMDs with bare hand.
- Avoid for storage places that are sensitive to oxidation such as places with sulfur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity.  
As a result the capacitance or resistance value of the SMDs may be affected.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

#### 3.2.2 Removal of SMDs

- Heat the solder (for 2-3 seconds) at each terminal of the chip. Small components can, by means of litz wire and a limited horizontal force, be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 1a) or
- While holding the SMD with a pair of tweezers take it off gently using the soldering iron's heat applied to each terminal (see Fig. 1b).
- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 1c).

##### 3.2.2.1 Caution on removal:

- When handling the soldering iron, use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W), must preferably be provided with a thermal control (soldering temperature about 225 to 250°C).
- The chip, once removed, must **never** be used again.

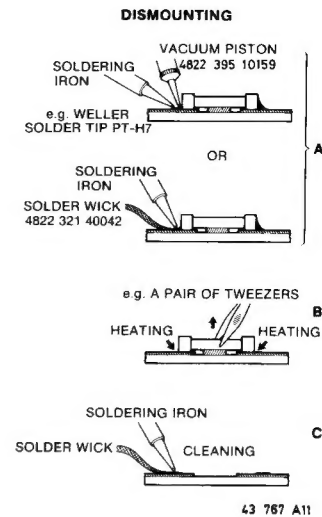


Fig. 1

#### 3.2.3 Attachment of SMDs

- Locate the SMD on the solder lands by means of tweezers and solder the component at one side. Ensure that the component is positioned well on the solder lands (see Fig. 2a).
- Next complete the soldering of the terminals of the component (see Fig. 2b).

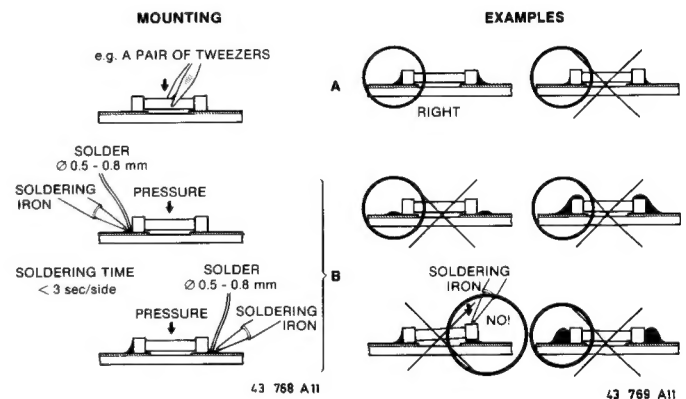


Fig. 2

Fig. 3

##### 3.2.3.1 Caution on attachment:

- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering must be as quick as possible; care must be taken to avoid damage to the terminals and the body itself.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) must preferably be provided with a thermal control (soldering temperature about 225 to 250°C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional with the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 3).

### 3.3 HANDLING ESD-SENSITIVE COMPONENTS

#### 3.3.1 Personal safety

The testing, handling and replacing of ESD-sensitive components requires special attention for personal safety. A person dealing with ESD-sensitive components should, normally speaking, be connected via a resistance to the same potential as the chassis of the set to protect him against direct contact with the supply voltage.

This resistance is often applied in the connection lead of wrist wraps. If necessary, make use of an isolating transformer.

#### 3.3.2 Storage and transport

Transport and store the circuits and PCBs in their original packages.

As an alternative to the original package one may use a conductive material or special IC package which short-circuits all the pins of the component with one another.

Always discharge the package before opening it.

#### 3.3.3 Testing or handling

Work on a conductive surface when testing loose circuits and components or when transferring components and circuits from one package to another.

Use a conductive wrist wrap with lead to make an electrical connection between the conductive surface and yourself via a resistance in the connection lead of the wrist wrap.

Connect equipment and tools also with this conductive surface.

Do not connect any signals to inputs as long as the power supply of the set to be tested is off.

All the inputs that are not used should be connected either to ground or to the supply voltage. When testing, do not use any freon sprays for under-cooling of sensitive components.

#### 3.3.4 Mounting ESD-sensitive components

Mount ESD-sensitive components only after all other components have been mounted.

Make sure that the components themselves, the metal parts of the PCB, mounting equipment and mounting operator are at the same potential level as the chassis of the set.

If it is impossible to ground the PCB, the mounting operator should pick the PCB up before bringing it into contact with the components to be replaced.

#### 3.3.5 Soldering

Soldering iron tips, also those of low-voltage soldering stations, should be kept at the same potential as the components and the PCB.

It is better to use solder-removing braid than solder suckers.

#### 3.3.6 Electrostatic charges

One should stick to the precautionary measures also after the ESD-sensitive components have been mounted on the PCB. Until the sub-PCBs have been incorporated into a complete system on which the correct supply voltages are connected, the PCB is nothing more than an extension of the conductors of the components on this PCB. To prevent electrostatic discharges from passing to the components via the terminals, we recommend that you apply conductive clips or conductive tape on the terminals of the PCB.

#### 3.3.7 Transients (switch-on phenomena)

To prevent permanent damages as a result of switch-on phenomena, no ESD-sensitive components, or PCBs populated with these components, should be inserted in or removed from test-sockets or systems with the supply voltage on.

Prevent switching peaks on the mains as a consequence of switching electric equipment, relay and DC lines on and off.

#### 3.3.8 Working environment

The work bench for the service technician should look like the one shown in the figure.

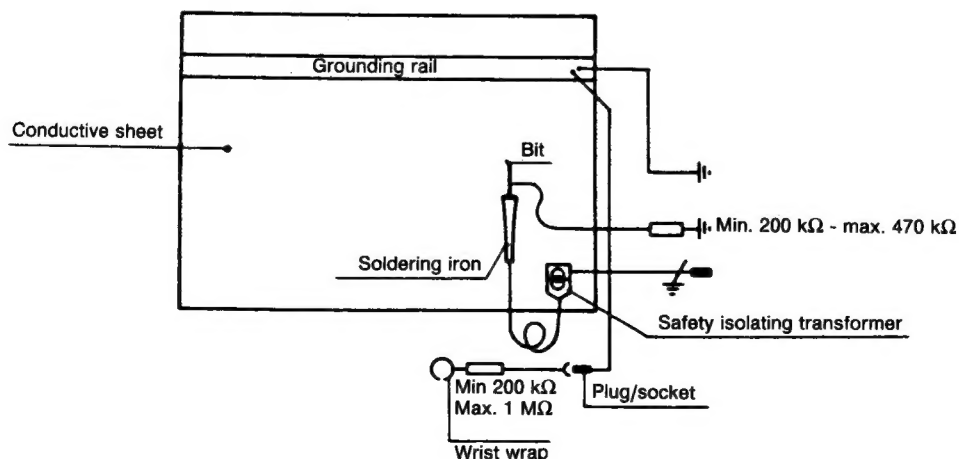
#### 3.3.9 Replacement of the Flat Pack IC's

For replacing a component see Fig. 6 Dismounting and Mounting. Also a number of precautions and examples is given.

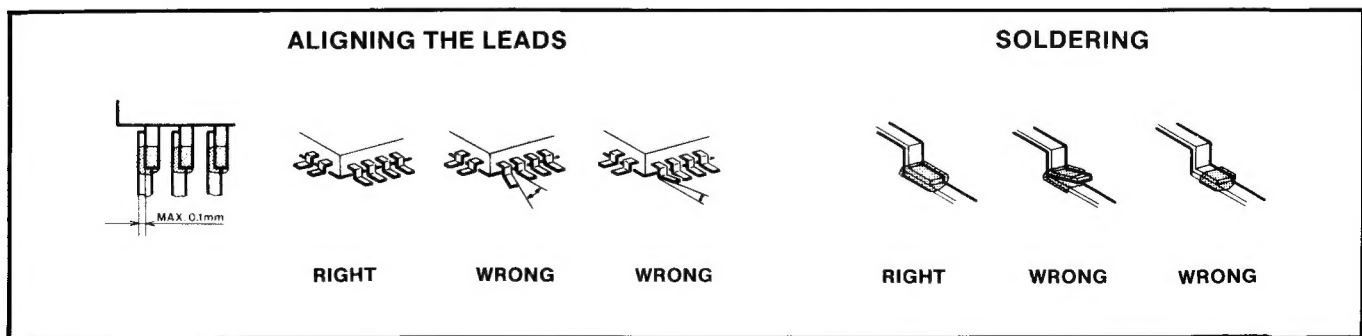
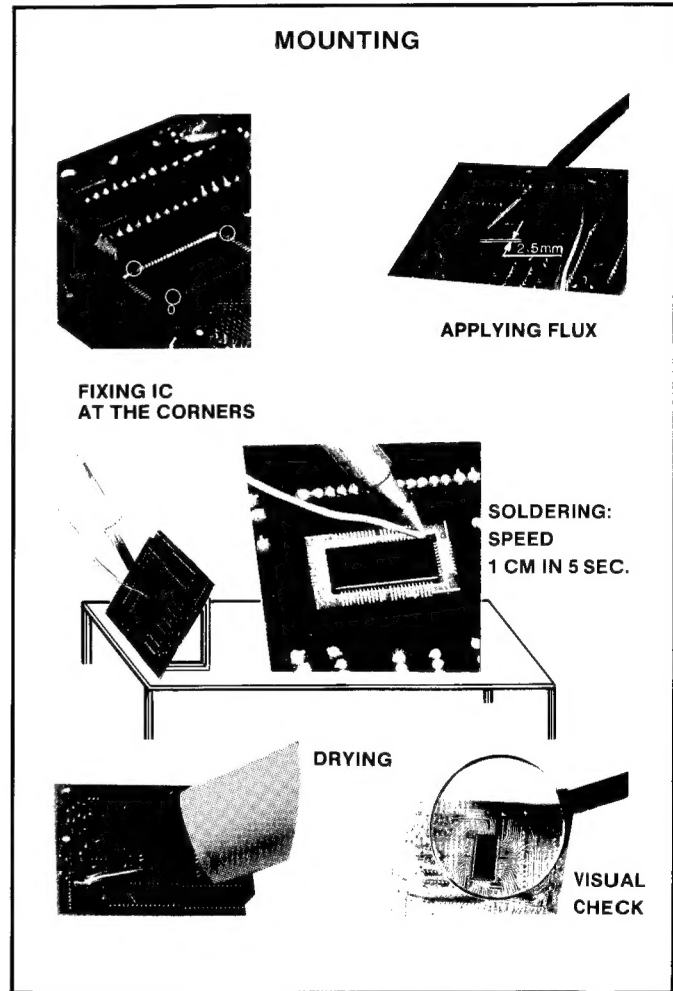
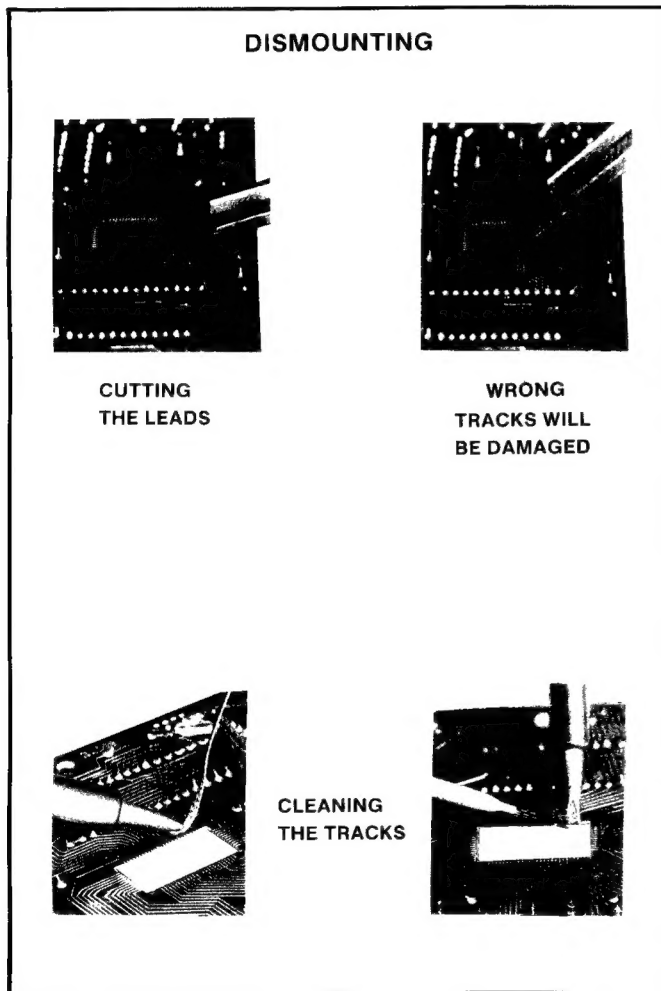
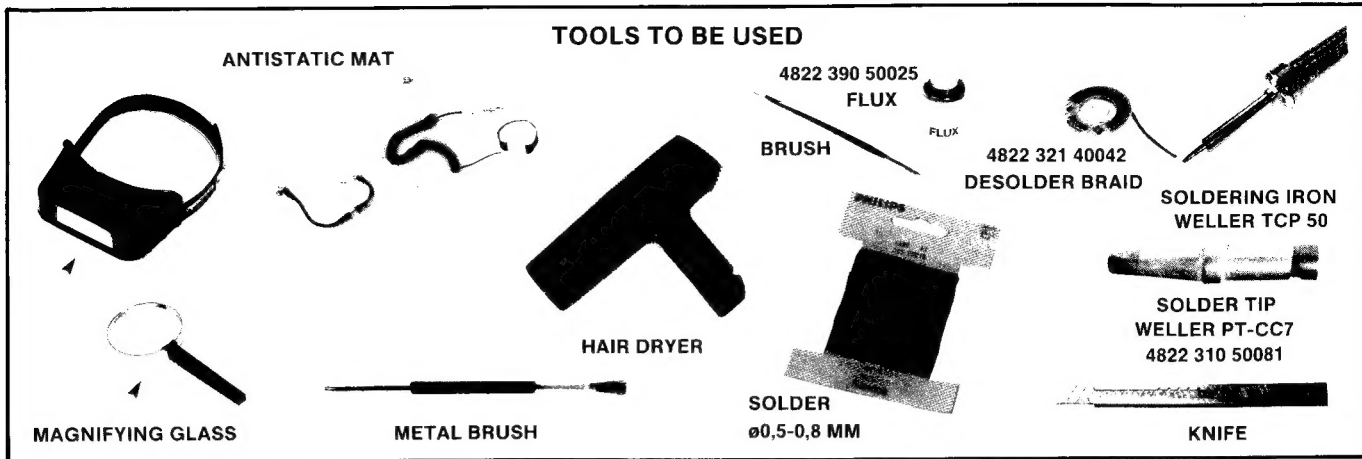
When replacing a flat pack, rosin flux applied to the device leads will ensure a good soldered joint.

Since rosin flux, when not properly heated by the soldering process, is sticky, it will attract dust which will result in component degeneration over a period of time.

The removal of excess flux with a cleaner will not solve this problem because the flux is then even spread over a greater area by the cleaner. Drying of the flux can be accomplished by blowing the area with a common hair dryer for 1 or 2 minutes at a distance of approx. 10 centimeters.



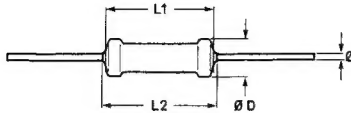
Special attention should be paid in regions having a dry atmosphere and when the floor is covered with a nylon carpet or such.



### 3.4 CODENUMBERS FOR STANDARDIZED RESISTORS

Unless otherwise specified, all defective resistors in the circuits of the set can be replaced by standardized types, mentioned in this chapter.

#### VR25, VR37 high-ohmic/high-voltage resistors



type	D <sub>max</sub>	L <sub>1 max</sub>	L <sub>2 max</sub>	d
VR25	2,5	6,5	7,5	0,6

type	D <sub>max</sub>	L <sub>1 max</sub>	L <sub>2 max</sub>	d
VR37	3,7	9,0	10,0	0,7

Range VR25 : 100 KΩ to 22 MΩ

Range VR37 : 100 KΩ to 33 MΩ

Composition of the service number for the VR25 and VR37  
Main subgroup: 4822 053 20... and 4822 053 21...

The codenumber above is completed by inserting the first two figures (resistance code) followed by the multiplier.

4 for R = 100K to 910 KΩ  
5 for R = 1M to 9.1 MΩ  
6 for R = or > 10M

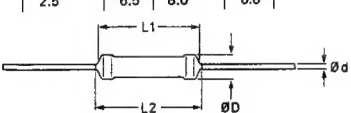
Example's:

The serv.nbr. for a VR25 resistor of 100 KΩ  
is 4822 053 20104

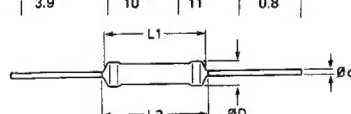
The serv.nbr. for a VR37 resistor of 33 MΩ  
is 4822 053 21336

#### PR01, PR02 and PR03 power metal film resistors

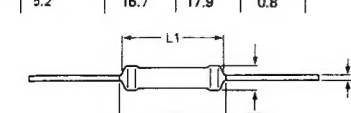
φD <sub>max</sub>	L <sub>1</sub>	L <sub>2 max</sub>	φd
2.5	6.5	8.0	0.6

φD <sub>max</sub>	L <sub>1 max</sub>	L <sub>2 max</sub>	φd
3.9	10	11	0.8

φD <sub>max</sub>	L <sub>1 max</sub>	L <sub>2 max</sub>	φd
5.2	16.7	17.9	0.8



Rated dissipation at T(amb) = 70 degrees :

PR01 = 1 Watt, PR02 = 2 Watt, PR03 = 3Watt

Composition of the service number for the PR01, PR02 and PR03

Main subgroup: 4822 053 10... ; 4822 053 11... and 4822 053 12...

The codenumber above is completed by inserting the first two figures (resistance code) followed by the multiplier.

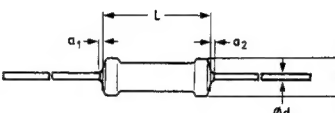
8 for R= 1 to 9,1 Ω  
9 for R= 10 to 91 Ω  
1 for R= 100 to 910 Ω  
2 for R= 1 to 9,1 KΩ  
3 for R= 10 to 91 KΩ  
4 for R= 100 to 910 KΩ  
5 for R= or > 1 MΩ

Example:

The serv.nbr. of a PR01 resistor of 47 Ω  
is: 4822 053 10479

The serv.nbr. of a PR03 resistor of 1 MΩ  
is: 4822 053 12105

#### NFR25 fusible resistors



D <sub>max</sub>	L <sub>max</sub>	d	a <sub>1</sub> + a <sub>2</sub>
2.5	6.5	0.6	≤ 1

Composition of the service number for the NFR25  
Main subgroup: 4822 052 10...

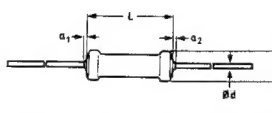
The codenumber above is completed by inserting the first two figures (resistance code) followed by the multiplier.

8 for R= 1 to 9,1 Ω  
9 for R= 10 to 91 Ω  
1 for R= 100 to 910 Ω  
2 for R= 1 to 9,1 KΩ  
3 for R= 10 to 91 KΩ

Example:

The service number of a resistor of 47 Ω  
is: 4822 052 10479

#### NFR25H fusible resistors



D <sub>max.</sub>	L <sub>max.</sub>	d	a <sub>1</sub> + a <sub>2</sub>
2,5	6,5	0,6	≤ 1

Composition of the service number for the NFR25H  
Main subgroup: 4822 052 11...

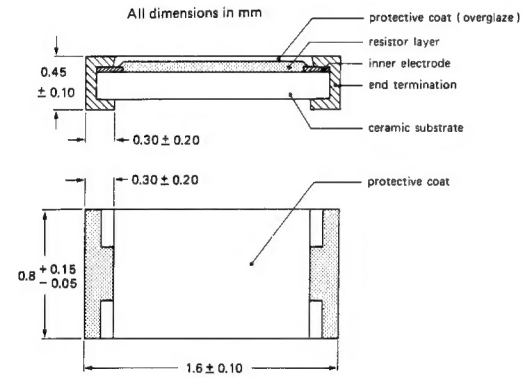
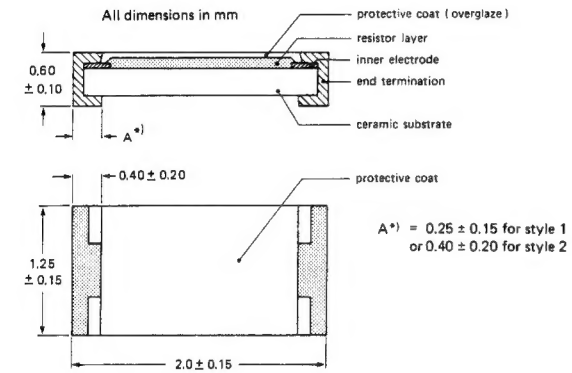
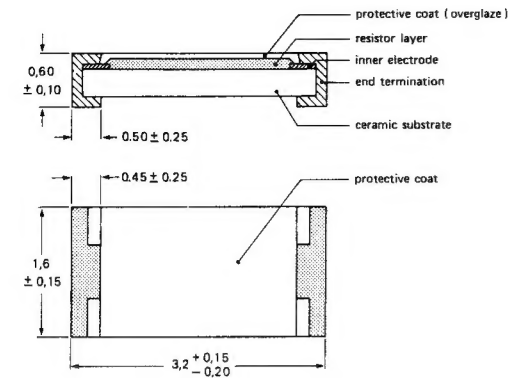
The codenumber above is completed by inserting the first two figures (resistance code) followed by the multiplier.

8 for R= 1 to 9,1 Ω  
9 for R= 10 to 91 Ω  
1 for R= 100 to 910 Ω  
2 for R= 1 to 9,1 KΩ  
3 for R= 10 to 91 KΩ

Example:

The service number of a resistor of 47 Ω  
is: 4822 052 11479

RC-01, RC-11 AND RC-21 chip resistors



Absolute max. dissipation :  
RC-01 : 0,25 W, RC-11 : 0,10 W, RC-21 : 0,062 W.

Range: RC-01 0 Ω TO 10 MΩ  
RC-11 0 Ω TO 10 MΩ  
RC-21 0 Ω TO 6,8 MΩ

Composition of the service number for the RC-01,RC-11 and RC-21  
Main subgroup: 4822 051 10... , 4822 051 20... and 4822 051 30...  
The codenumber above is completed by inserting the first two figures (resistance code) followed by the multiplier.

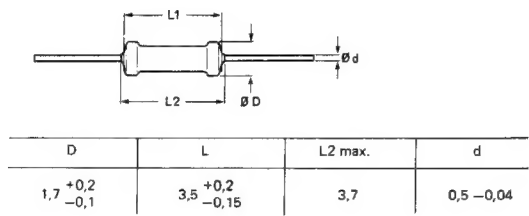
- 8 for R= 0 to 9.1 Ω
- 9 for R= 10 to 91 Ω
- 1 for R= 100 to 910 Ω
- 2 for R= 1 to 9.1 KΩ
- 3 for R= 10 to 91 KΩ
- 4 for R= 100 to 910 KΩ
- 5 for R= 1 to 9.1 MΩ
- 6 for R= or > 10 MΩ

Example's:  
The serv.nbr. for a RC-01 resistor of

0 Ω is 4822 051 10008  
The serv.nbr. for a RC-11 resistor of  
0 Ω is 4822 051 20008  
The serv.nbr. for a RC-21 resistor of  
0 Ω is 4822 051 30008

The serv.nbr. for a RC-01 resistor of  
10 Ω is 4822 051 10109  
The serv.nbr. for a RC-11 resistor of  
10 Ω is 4822 051 20109  
The serv.nbr. for a RC-21 resistor of  
10 Ω is 4822 051 30109

MRS16T metal film resistors with low-inductance

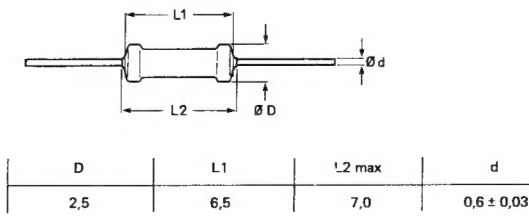


Composition of the service number for the MRS16T  
Main subgroup: 4822 050 1....  
The codenumber above is completed by inserting the first three figures (resistance code) followed by the multiplier.

- 8 for R= 4,99 to 9,76 Ω
- 9 for R= 10 to 97,6 Ω
- 1 for R= 100 to 976 Ω
- 2 for R= 1 to 9,76 KΩ
- 3 for R= 10 to 97,6 KΩ
- 4 for R= 100 to 976 KΩ
- 5 for R= or > 1 MΩ

Example:  
The service number of a resistor of 487 Ω is:  
4822 050 14871

MRS25 metal film resistors (0,5%)



Composition of the service number for the MRS25  
Main subgroup: 4822 050 2....

The codenumber above is completed by inserting the first three figures (resistance code) followed by the multiplier.

- 8 for R= 1 to 9,76 Ω
- 9 for R= 10 to 97,6 Ω
- 1 for R= 100 to 976 Ω
- 2 for R= 1 to 9,76 KΩ
- 3 for R= 10 to 97,6 KΩ
- 4 for R= 100 to 976 KΩ
- 5 for R= 1 to 9,76 MΩ
- 6 for R= or > 10 MΩ

Example:  
The service number of a resistor of 976 Ω is:  
4822 050 29761

II. SPECIFICATIONS

• FORMAT

System (or Type):	Optical videodisc system complies with Philips specifications
Usable disc:	8 cm CD'' 20 Min. 12 cm CD: 70 Min. CDV single: Video 6 Min. Audio 20 Min. 30 cm LD (CLV) disc: 60 Min./side 30 cm LD (CAV) disc: 30 Min./side 20 cm LD (CLV) disc: 20 Min./side 20 cm LD (CAV) disc:

• CONNECTIONS:

Video:	
ANT IN:	UHF input
VHF Output	For PAL TV receiver (75 ohms, unbalanced)
Video Output:	1 Vp-p (75-ohms load, sync. negative) cinch connector

Audio:	
Analog output:	200 mVeff (1 kHz, 40%),
Digital signal characteristics	
Frequency response:	3 Hz to 20 kHz ±0.5 dB
Signal-to-noise ratio:	97 dB
Dynamic range:	94 dB
Distortion rate:	0.003% (1 kHz, -20 dB)

• GENERAL

Power requirements:	220 V/240 V AC, 50 Hz
Power consumption:	39 W
Weight:	12 kg
Dimensions (W x H x D):	420 x 130 x 425 mm
Operational temperature:	+5°C to 35°C.
Humidity range:	5 to 90% (No condensation)
Safety requirements	IEC 65 (BS415 for U.K.)

• ACCESSORIES

Remote control Transmitter

• LASER DIODE

Laser type:	Semi conductor AL GA AS
Wave length:	780 nm
Output power:	3,3 mW typical

• OTHERS

Auto audio digital output:	When playing discs having a digitally-recorded audio signal, audio reproduction circuit is automatically changed to the audio digital circuit.
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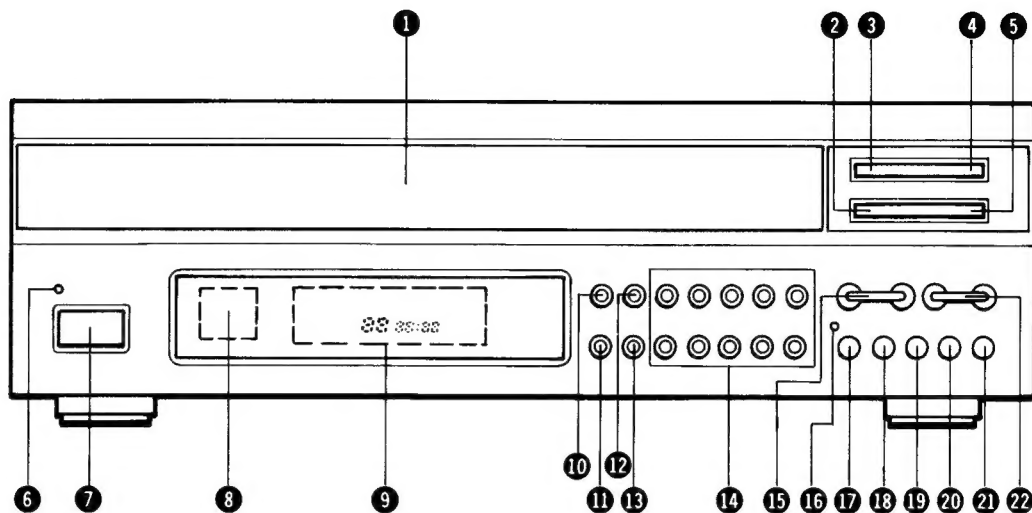
Specifications and design subject to change without notice.

The right is reserved to change data if necessary

This CD Video player complies with radio interference requirements  
as laid down in EC regulations.



### III. CONNECTION AND CONTROLS



#### GLOSSARY OF TERMS

CAV	Constant Angular Velocity
CLV	Constant Linear Velocity
CDV	Compact Disc Video
CD	Compact Disc
LD	Laser Disc
TOC	Table of Contents
FTD	Fluorescent Tube Display
OSD	On-Screen Display

## 1 DISC TRAY

Place a disc on the tray.

The tray slides out by pressing the OPEN/CLOSE (▲) button on the player or by pressing the OPEN/CLOSE on the remote control transmitter.

## 2 STOP (■) BUTTON

When this button is pressed during play, the disc rotation stops.

In the Stop mode, when more than 10 minutes have elapsed, the player enters the Stand-By mode automatically.

## 3 OPEN/CLOSE (▲) BUTTON

Press this button to open and close the disc tray.

When this button is pressed with the disc placed on the tray, the disc tray closes, and the TOTAL TRACK/CHAP and TOTAL TIME appear on the display of the player while the TOTAL TRACK/CHAP, TOTAL TIME and music calendar are displayed on the monitor screen, then the player enters the stop mode.

However, if an LD with no TOC is loaded, playback will start automatically.

When this button is pressed during play, disc rotation stops and the disc tray will open.

When this button is pressed with the disc tray open, the disc tray closes.

While the disc tray is the opening or closing the CD, CDV or LD indicator flashes.

## 4 PLAY (▶) BUTTON

When this button is pressed after placing a disc on the disc tray, the disc slides into the player and play starts.

- Pressing this button in Stop mode starts play.
- Pressing this button during play moves the play position to the beginning of the chapter or track being played, and re-starts play from there.
- Pressing this button can also start program play.
- Pressing this button during playback in a mode other than normal Play mode causes normal Play mode to resume.

## 5 PAUSE (⏸) BUTTON

When this button is pressed during Play mode, play is stopped temporarily. To resume play, press the PLAY button, or the PAUSE button again.

## 6 STANDBY INDICATOR

When the AC cord is plugged into an AC outlet, the player enters the Stand-By mode (Normal status: If the disc tray is open, it will be closed.), and this indicator lights.

When the STANDBY button is pressed, the indicator lights up to show that the unit is in the stand-by mode. It will go out when the power is turned ON.

## 7 ON/STANDBY BUTTON

When this button is pressed, the player enters the Stand-By mode and the STANDBY indicator lights up. (All the data stored in the memory are then erased.)

Pressing this button and any of the OPEN/CLOSE (▲), PLAY (▶), STOP (■), PAUSE (⏸), SKIP (⏮, ⏭) buttons turns the power on.

*Note: In the Stand-By mode, no operations other than the above are possible.*

## 8 REMOTE SENSOR

This is the receiver for the signal transmitted from the remote control transmitter.

## 9 MULTI-FUNCTION DISPLAY

## 10 RECALL BUTTON

Press this button to check the programmed contents.

## 11 CANCEL BUTTON

Use this button in the following cases.

- To cancel repeat play.
- To correct an entry made using the numeric buttons (only during programming). When this button is pressed again, the program mode will be cancelled.
- To cancel Programmed play.
- To cancel random play.
- To cancel A-B repeat.

## 12 SELECT BUTTON (LD)

Press this button to recall the specific position you want to view and/or listen to (search operation).

With a LD (CAV) disc, pressing this button activates frame number search mode. With a LD (CLV) extended play disc, pressing this button activates time number search mode.

## 13 ENTER BUTTON

Press this button to enter a program for programmed play.

## 14 NUMBERED BUTTONS

Use these buttons when searching or programming chapters or tracks.

## 15 SKIP (⏮ / ⏭) BUTTONS

Press one of these buttons to skip to the beginning of a chapter or track.

⏭ : When this button is pressed during Play mode, the beginning of the next chapter or track is detected. When it is kept pressed, the chapter or track number is advanced continuously.

⏮ : When this button is pressed during Play mode, the beginning of the current chapter or track is detected.

When it is kept pressed, the chapter or track number is reversed continuously.

## 16 EDIT INDICATOR

Lights up when the EDIT button is pressed. It lights up during EDIT play.

## 17 EDIT BUTTON

With this function, an interval of four seconds will be left between tracks during play. It is convenient when recording from a disc to tape.

Press this button when entering the edit program.

## 18 RANDOM BUTTON

Press this button to start random play.

(Effective only for CD, CDV-Single, and LD disc with TOC)

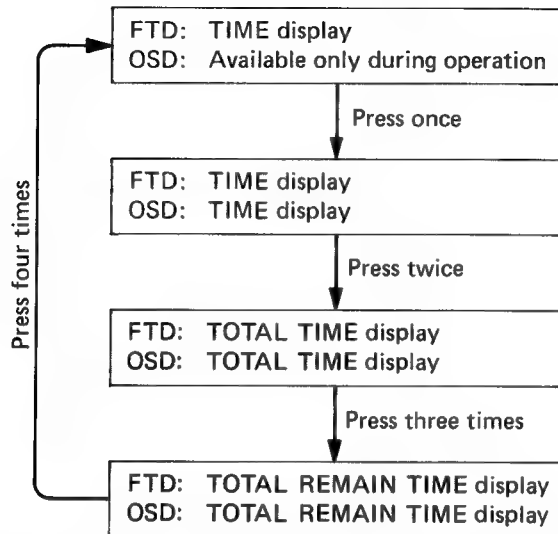
## 19 PROGRAM BUTTON

This button is used to program the desired chapters or tracks in a desired order (programmed play).

## 20 DISPLAY MODE BUTTON

This button is used to changed the contents of the Fluorescent Tube Display (FTD) on the player and On-Screen Display (OSD) on the monitor screen.

*Note: This function is effective only when Display ON/OFF is ON (and both FTD and OSD are activated).*



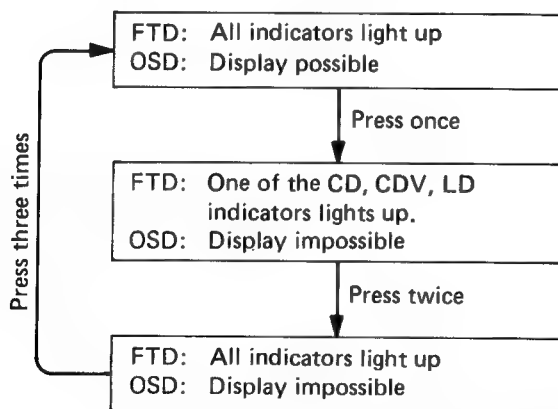
Displayed contents differ depending on the disc being played.

– Not with CD-audio

## 21 DISPLAY ON/OFF BUTTON

This button is used to switch off the Fluorescent Tube Display (FTD) on the player or the On-Screen Display (OSD) on the TV.

Display status which depends on the setting of the display ON/OFF button is shown below.



## 22 SEARCH BUTTONS

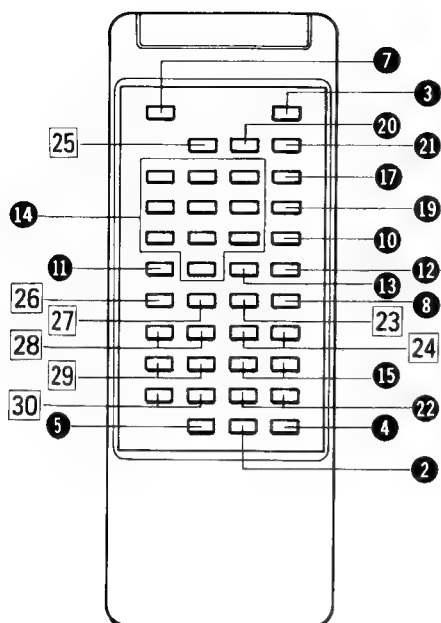
When one of these buttons is pressed and held down during Play mode, the player searches forward or backward.

▶▶ : Forward search.

◀◀ : Backward search.

The search speed varies in two steps. It is low for the first two seconds after the button is pressed, and then becomes high.

## Remote control



Any other button than given below serves the same operation as does its corresponding one of a CDV player.

### **23 AMS (Auto Music Scan) BUTTON**

Press this button to start AMS play, or when entering the program for AMS play.

### **25 I-II BUTTON (LD)**

If you wish to listen to only one audio channel, as in the case of a bilingual disc, press the I-II button to select the desired channel. Each press switches the selected channels as follows: 1/L → 2/R → 1/L and 2/R (stereo) → 1/L → ....

### **27 A-B BUTTON**

Use this button for a block repeat between points A and B. To stop the process, press the Cancel button.

### **28 STEP (◀|||▶) BUTTONS (CAV - Constant Angular Velocity)**

Press one of these buttons to freeze the picture. After this, each press of a button moves the still frame step by step in either direction.

To cancel the still picture, press the PLAY (▶) button.

### **29 SPEED PLAY (REV./FWD) BUTTONS [CAV]**

With these buttons you can determine the direction of play. You must then press on the REV./FWD keys to raise or lower the default speed of 1/4. This ranges from three times the normal speed to one frame per three seconds.

### **30 SPEED (▲/▼) SET BUTTONS [CAV]**

When the power is switched ON the initial speed is 1/4 the normal speed.

With these buttons the speed can be raised or lowered in eight steps after first pressing one of the SPEED REV/FWD buttons.

## IV. DISASSEMBLY PROCEDURES

### A. TRAY ASSEMBLY REPLACEMENT PROCEDURES

#### DISMANTLING THE TRAY ASSEMBLY

1. Remove the top cover by extracting screws (C).
2. Remove the RGB assembly (PG06) together with the insulator by removing the screws (D). (Fig. 2-1)
3. Remove the screws (A) retaining the front panel, and stretch the two connective cords for the FRONT assembly. Place the front panel with the control keys facing upward in a position which will not contact the disc tray even when it comes out open. (Figs. 1, 2-1)
4. Remove the top front brace by removing the screws (B). (Fig. 1)
5. Insert the power plug into a power outlet, press the OPEN button to open the disc tray, then unplug the power plug.

**Note:**

- If tray assembly will not open, then perform the **MANUAL TRAY OPENING PROCEDURES**.
- When disconnecting the connector (JF01) on the front assembly (PF06), draw out this connector undoing the stopper by the straight-edge screwdriver inserted as indicated by arrows in Fig. 2-2.

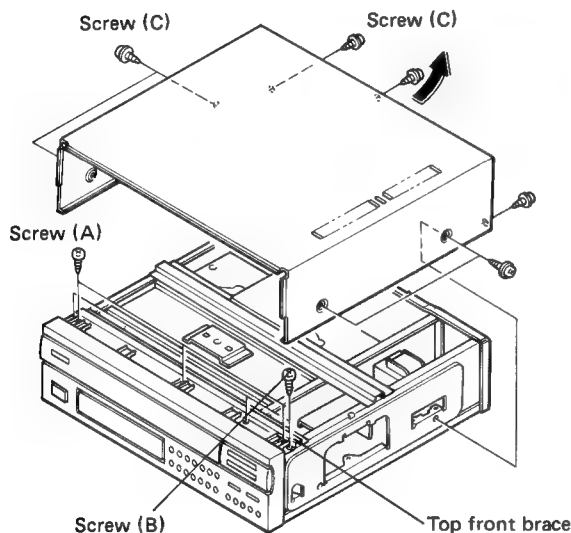


Fig. 1

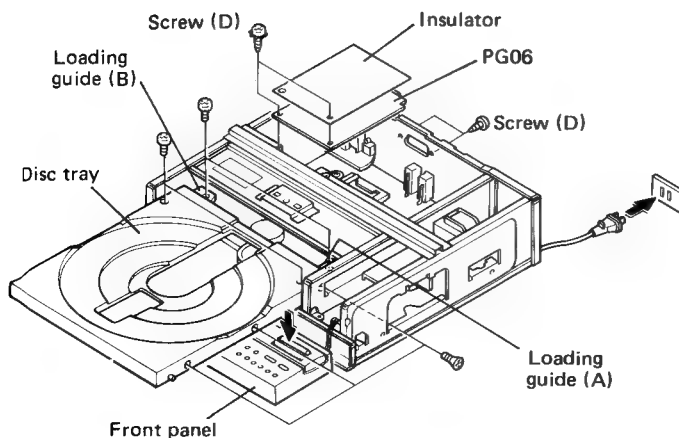


Fig. 2-1

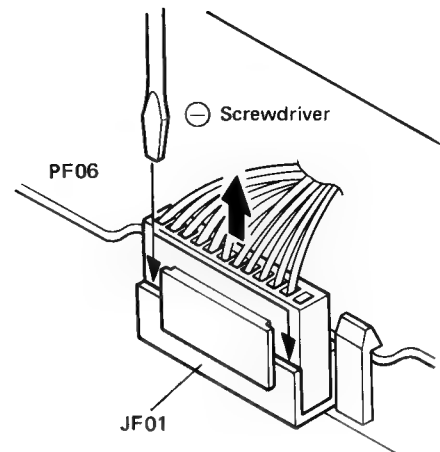


Fig. 2-2

6. Remove the four screws mounting the loading guides (A) and (B). (Figs. 2-1 and 2-3)  
However, in this situation, the one screw mounting the loading guide (A) still remains under the disc tray. Therefore, the disc tray cannot be detached yet.
7. Push in the disc tray about 7 cm from its fully drawn-out status, then remove the three screws on its right side. In this case, insert a screwdriver from the right side of the unit for removal of the one screw located at the depth. (Figs. 2-1 and 2-3)
8. Detach the disc tray and the loading guide (B) (left one).
9. Remove the rest one screw mounting the loading guide (A) (right one). (Fig. 3)  
This one screw needs no reinstallation.

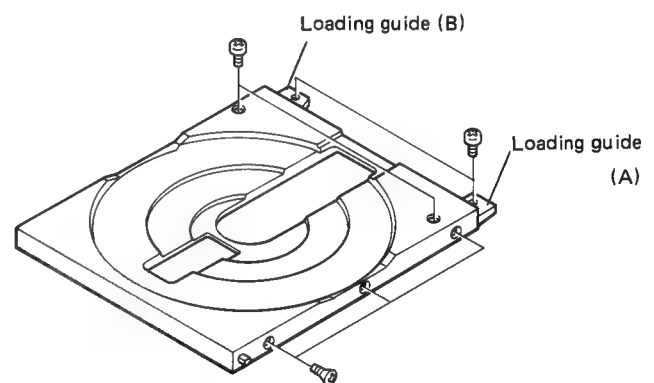


Fig. 2-3

10. Install the loading shaft, loading guide (A), shaft holder and cushion to the disc tray securely by three flat head screws. (Fig. 4-1)
11. Install the loading gear ass'y and loading guide (B) to the disc tray. At this time, set the shaft of the loading gear ass'y into parallelism with the tray end. (Fig. 4-2) Draw care not to let the loading guide (B) off, which is not fixed to the disc tray.

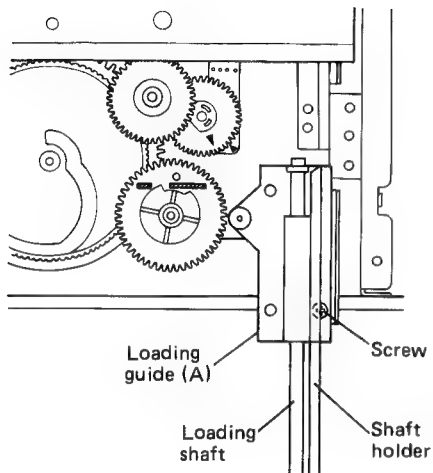


Fig. 3

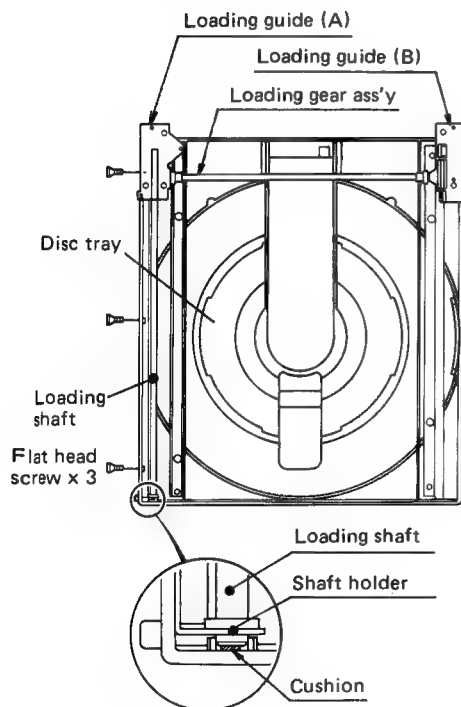


Fig. 4-1

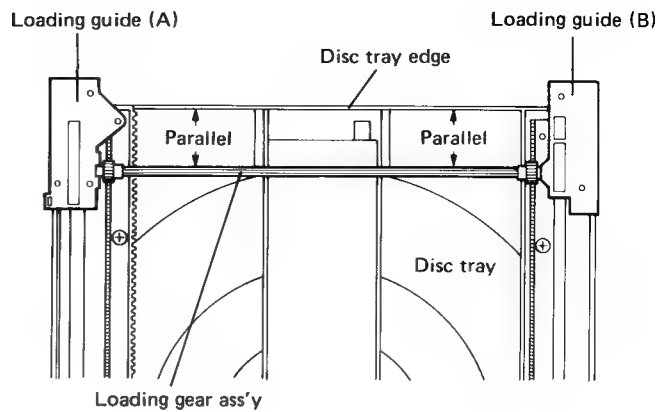


Fig. 4-2

## B. MANUAL TRAY OPENING PROCEDURES

1. Remove the bottom plate. (Fig. 5)
2. Remove the fixing screws of the main assembly (P506), the fixing screws of the ROM assembly (PU06) bracket and the terminal fixing screws of the rear panel. (Fig. 5)

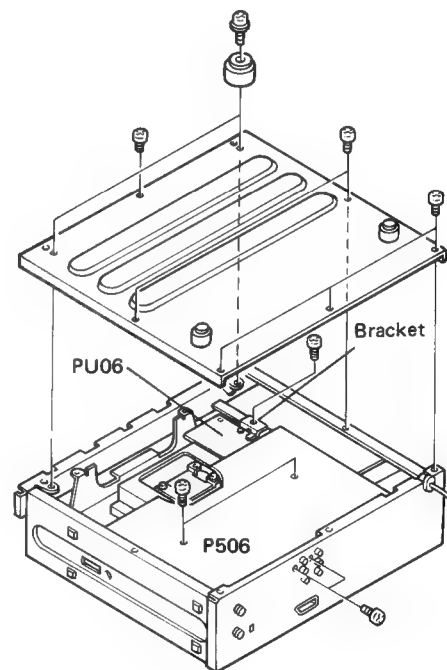


Fig. 5

3. Turn the gear (B) clockwise by inserting your finger through the rectangular hole on the side of the loading motor; the turntable will move down and the disc tray will come out open. (Fig. 6) When the disc tray comes out a little, it can be opened with your hand.

**Note:** Be careful not to deform the gear teeth, for this will cause abnormal noise during operation.

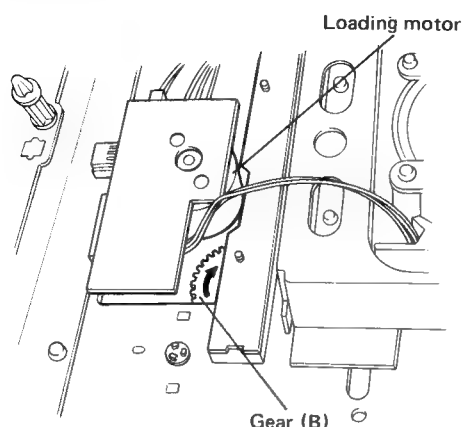


Fig. 6

### C. ATTACHING THE TRAY ASSEMBLY

1. Turn the control cam clockwise until it stops. (Fig. 7)
2. Check that the marks (A) and the marks (B) are aligned respectively.
  - If the marks (A) are not aligned between each other, refer to "ATTACHING THE CONTROL CAM" (page 11).
  - If the marks (B) are not aligned between each other, remove the gear (A) and align them. Once the marks (B) are aligned, replace gear (A).

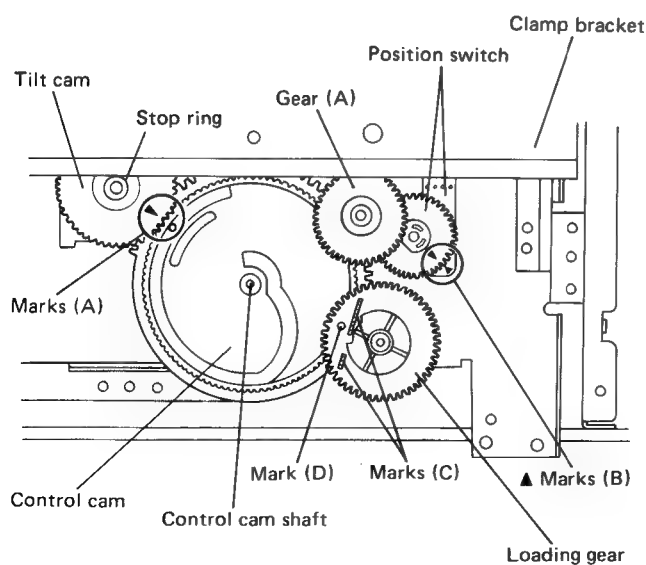


Fig. 7

3. Turn the control cam counterclockwise until it stops.
4. Set the loading gear so that the marks (C) on it are in parallel with the front chassis or clamp bracket. (Fig. 8)

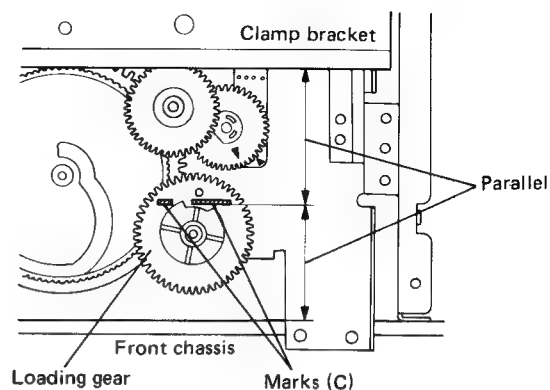


Fig. 8

5. With the loading guides (A) & (B) fully extended, mount the disc tray and loading guides on the chassis. (Fig. 9)
6. Check that the disc tray is inserted in parallel with the chassis.

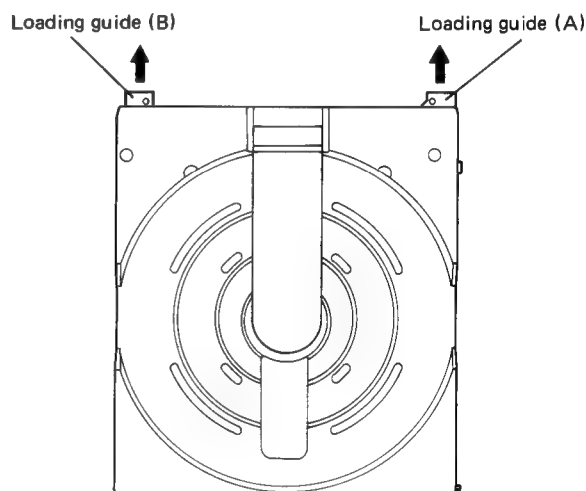


Fig. 9

7. With the disc tray in the fully open position, check that the marks (C) on the loading gear are in parallel with the rear edge of the disc tray. (Fig. 10)

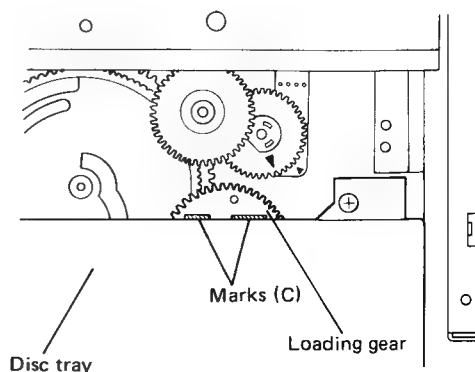


Fig. 10

8. Attach the loading guides (A) & (B) with screws (Figs. 2-1, 2-3), and push the disc tray into the loaded position.
9. Attach the top front brace. (Fig. 1)
10. Return the connective cord of the front panel to the original condition, and attach the front panel with screws. (Fig. 1)
11. Attach the top cover. (Fig. 1)

#### D. ATTACHING THE CONTROL CAM

In case you have removed the control cam, attach it following the procedure below.

1. Set the slide base drive shaft to the closest position to the control cam shaft. (Fig. 11)

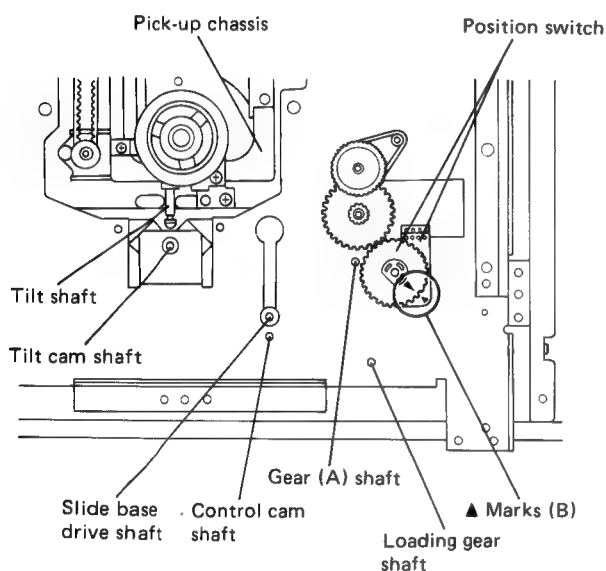


Fig. 11

2. Mount the control cam by passing the control cam's shaft through the hole on the center of the control cam and placing the slide base drive shaft into the guide groove on the back of the control cam, and secure the control cam with the washer. (Fig. 12)

In case it is difficult to insert the slide base drive shaft into the guide groove, move the slide base drive shaft back by 0.5 to 1 mm apart from the control cam shaft.

3. Turn the control cam clockwise until it stops. Retain the control cam in this position until the tilt cam, gear (A) and loading gear have been mounted. (Fig. 12)
4. Holding the tilt cam so that its mark points to the tilt shaft, mount the tilt cam by passing the tilt cam shaft through the cam hole. Then, lower the tilt cam to a position with which the tilt cam gear does not engage with the control cam gear, and turn the tilt cam counterclockwise until it stops. (Fig. 12)

Check that the tilt shaft is inserted into the guide groove on the tilt cam.

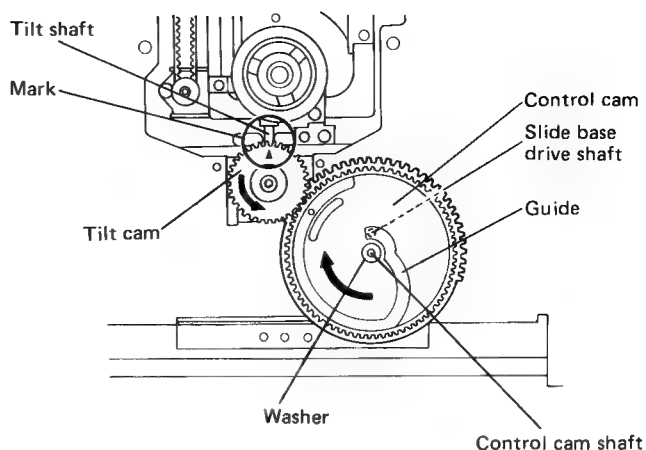


Fig. 12

5. Align the mark (A) on the control cam with the mark (A) on the tilt cam, and mount the E-clip on the tilt shaft. (Fig. 7) When the tilt cam is attached, the control cam may rotate counterclockwise due to the weight of the pick-up chassis. Return the control cam by turning it clockwise until it stops.
6. Align the mark (B) on the position switch as shown in Fig. 7 or Fig. 11.
7. Attach the gear (A) and mount the retaining ring. (Fig. 7)
8. Attach the loading gear so that its mark (D) points to the control cam shaft and mount the retaining ring. (Fig. 7)
9. Attach the tray assembly.



### E. PICK-UP ASSEMBLY REPLACEMENT PROCEDURES

Use an ESD wrist strap when working around the unit, especially the LASER assembly.

1. Remove the top cover, then detach the RGB assembly (PG06) together with the insulator. (Figs. 1 and 2-1)
2. Insert the power plug into a power outlet, press the OPEN button to open the disc tray, then unplug the power plug.

6. Turn the slide motor drive gear with your finger to move the PICK-UP assembly until you can see it. (Fig. 14)
7. On the pick-up side, unlock the connector of the flexible wire by sliding the lock in the direction of the arrow, and disconnect the flexible wire. (Fig. 14)

*Note: If tray assembly will not open then perform the MANUAL TRAY OPENING PROCEDURES (page 9).*

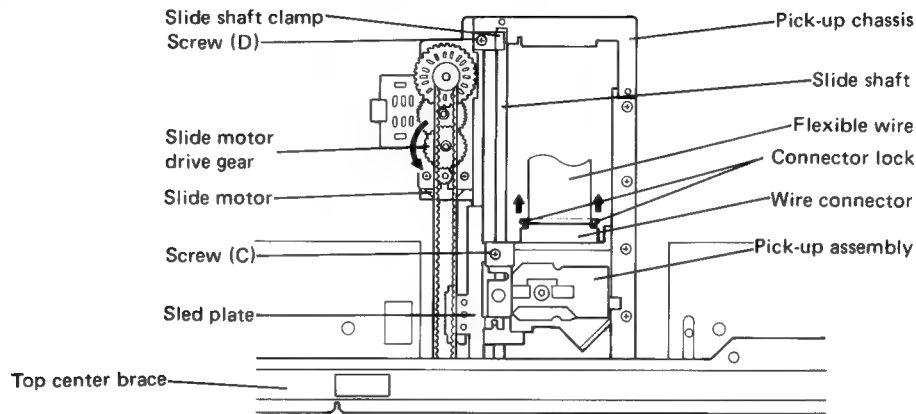


Fig. 14

3. Remove the fixing screws of the clamp bracket at both of its ends. (Fig. 13)
4. Force open the clamp bracket by a pointed instrument such as eyelet or tweezers inserted between the clamp bracket (right side) and the mechanism chassis. Then, release the clamp bracket from a stopper (protrusion) of the mechanism chassis. (Fig. 13)
5. Force open the clamp bracket at its left side by hand, then release the clamp bracket from a stopper of the mechanism chassis, and detach it from the unit. (Fig. 13)

8. Loosen the screw (E) which retains the slide shaft clamp from the center. (Fig. 15)
9. Remove the screw (C) which retains the sled plate and the screw (D) which retains the slide shaft clamp from the rear side. (Fig. 14)

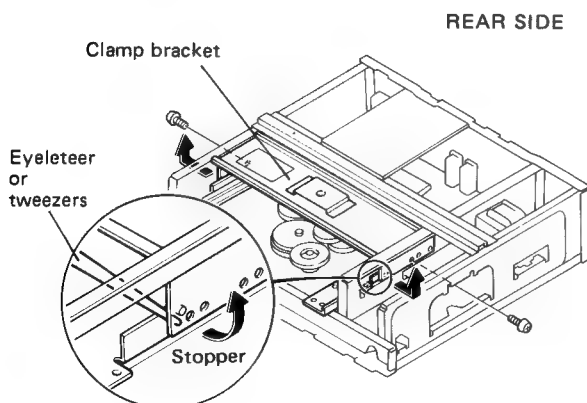


Fig. 13

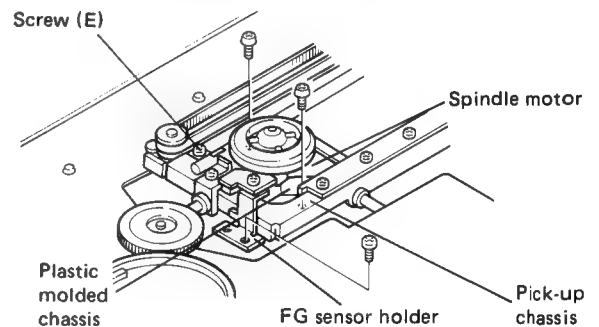


Fig. 15

10. Take out the slide shaft and PICK-UP assembly. (Fig. 16)
11. Replace with the new PICK-UP assembly, and reassemble the parts by reversing the procedure above.

*Note: Be careful not to deform the pickup chassis during removal or installation.*

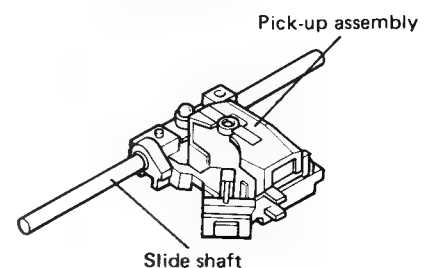


Fig. 16

## F. SPINDLE MOTOR REPLACEMENT PROCEDURES

1. Perform steps 1-5 of "E. PICK-UP ASSEMBLY REPLACEMENT PROCEDURES."
2. Rotate the slide motor drive gear, and move the pick-up assembly to the rear panel side to permit the insertion of a hexagon wrench. (Fig. 14)
3. Loosen the hexagon socket head screw using a hexagon wrench, then draw out the turntable from the spindle motor shaft. (Fig. 17)
4. Remove the screws (F) installing the spindle motor to the plastic molded chassis. (Fig. 17)
5. Turn over the unit, thereupon detach the bottom plate, the main assembly (P506) and ROM assembly (PU06). (Fig. 5)
6. Disconnect CN1 on the loading motor assembly. (Fig. 18)
7. Remove the screws (G), then detach the guard plate and the spindle motor. (Fig. 18).
8. Replace the spindle motor with a new one, and perform reassembling in the procedure reverse to above.

*Note: When installing the turntable to the spindle motor, follow the next "G. TURNTABLE INSTALLATION PROCEDURES."*

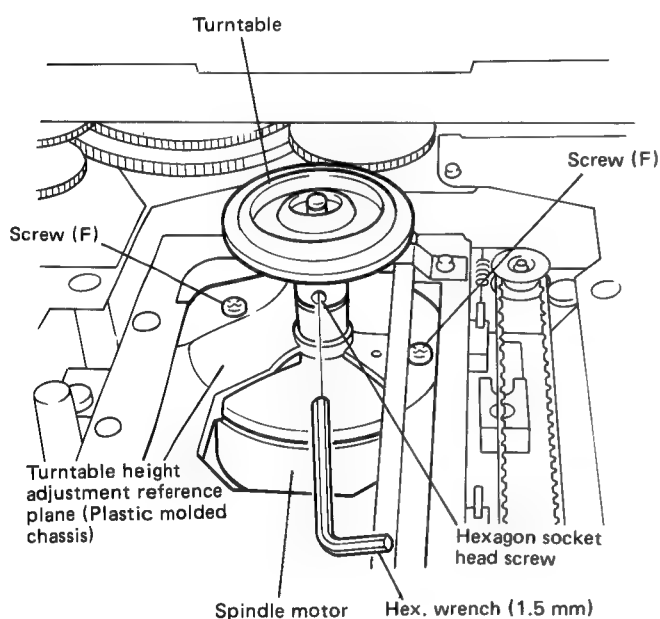


Fig. 17

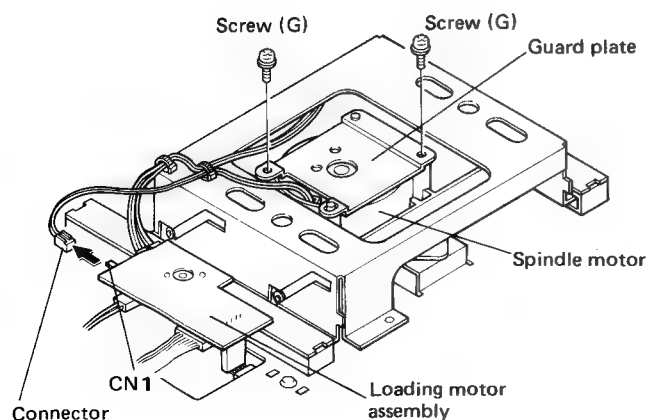


Fig. 18

## G. TURNTABLE INSTALLATION PROCEDURES

1. Perform steps 4-8 of "F. SPINDLE MOTOR REPLACEMENT PROCEDURES" in reverse order, and fix the spindle motor to the plastic molded chassis by screws.
2. After full insertion of the turntable to the spindle motor shaft, keep the turntable 2-3 mm away from the bearing of the spindle motor shaft and tighten the hexagon socket head screw temporarily. (Fig. 19)
3. Place the turntable height adjusting device in close contact with the upper surface of the turntable in such a manner that its leg section comes above the height adjustment reference plane of the plastic molded chassis. (Figs. 17 and 20)
4. Loosen the hexagon socket head screw, and lower the turntable until the leg section of the height adjustment device comes into contact with the reference plane. Then, retighten the hexagon socket head screw securely. (Fig. 20)

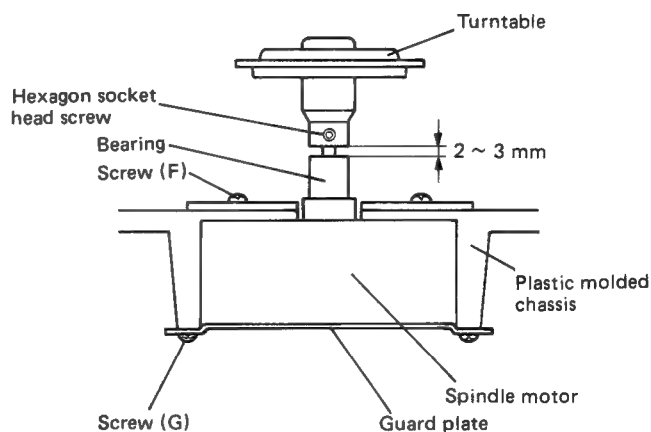


Fig. 19

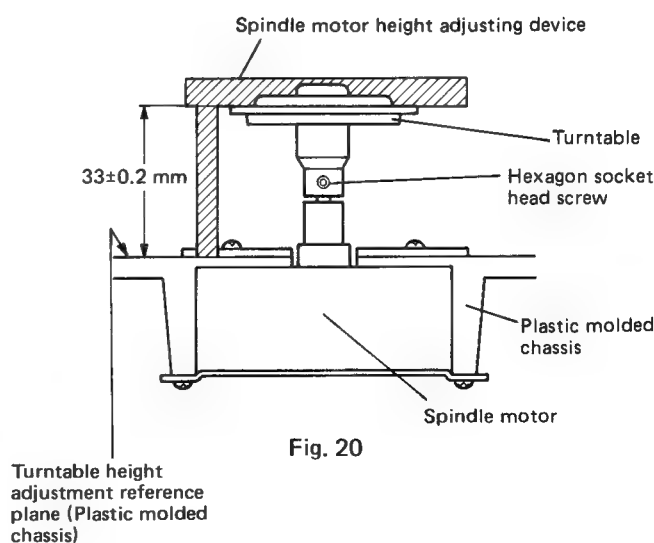


Fig. 20

## V. ADJUSTMENT PROCEDURES

### FIXTURES AND INSTRUMENTS REQUIRED FOR ADJUSTMENTS

- Small screwdriver
- Trox screwdriver set 4822 395 50145
- Hexagon wrench (1.5 mm)
- Dual-trace oscilloscope (with delay)
  - Voltage range : 0.001 ~ 50 V/div.
  - Frequency range : DC ~ 50 MHz
  - Probes : 10:1, 1:1
- AF generator
- Frequency counter
  - Frequency range: 0 ~ 50 MHz, 8 digit readout
- LD test disc (4822 397 30207)
- LD with digital audio disc (purchase locally)
- CD test disc (Philips 5A) (4822 397 30096)
- Spindle motor height adjusting device (4822 395 80389)
- Service test stand (4822 395 90896)
- Extension cables
  - 3P, Servo PCB (J281) ~ Main PCB (J501)  
(4822 321 61071)
  - 11P, RGB PCB (JM02) ~ Main PCB (J511)  
(4822 321 61072)
  - 12P, RGB PCB (JM01) ~ Main PCB (J701)  
(4822 321 61073)
  - 24P, Pick-up ass'y ~ Servo PCB (J101)  
(4822 321 61124)

### A. ADJUSTMENT PREPARATIONS AND PRECAUTIONS

#### 1. Player settings

When adjusting the player, stand the set with the power transformer side down or place the set on the Service Test Stand, and open the MAIN assembly before starting adjustment.

#### 2. Opening the tracking servo

The tracking servo can be opened and closed during test mode controlled by microcomputer.  
(For details, refer to "Test Mode Operation".)

#### 3. Test discs

The LD test discs used in these adjustments may be either N series or F series. The frame numbers given in the text are N series numbers while those enclosed in parentheses are F series numbers.

#### 4. Oscilloscope

Unless specified otherwise, all oscilloscope settings shown in the connection diagrams are values obtained by using a 10:1 probe.

### B. TEST MODE OPERATION

#### 1. How to enter Test mode:

Press and hold the PLAY and PAUSE keys simultaneously, and plug the AC power cord into the power outlet. At this time, the player goes automatic in PLAY. The player functions as it normally does. But the EDIT key, RANDOM key, and PROGRAM key do not operate.

#### 2. Operation

When the unit enters the Test mode, the picture on the TV monitor screen changes to the Test mode picture, where the internal information of the Main  $\mu$ -COM is displayed.

Except for the Main  $\mu$ -COM internal information display mode, the Test mode operations can be controlled by the numeric keys of the Multi Laser Disc Player unit.

### C. STEP MODE

Press RANDOM key "M" appears on screen.

The  . . . .  keys have the following functions.

#### 1. Key function

- key:  
The focusing operation can be switched ON.
- key:  
The tilt servo can be switched ON.
- key:  
The tracking servo can be switched ON.
- key:  
The spindle servo can be switched ON.

#### 2. How to terminate Test mode

Press the 7-key.

When Random key is pressed again, the service step mode is enabled again.

## D. SERVO ASSEMBLY ADJUSTMENTS

### IMPORTANT NOTE:

The following Servo adjustments can be performed separately.

Procedure D-7 and D-8

When one of items D-1 to D-6 for servo adjustment has been performed, perform items D-1 to D-6 for servo adjustment again.

#### D-1 Tilt Balance Adjustment

- Purpose: To adjust the electrical offset of tilt servo by means of the Tilt Balance Control (R255)
- Symptoms indicating need for adjustment: Crosstalk

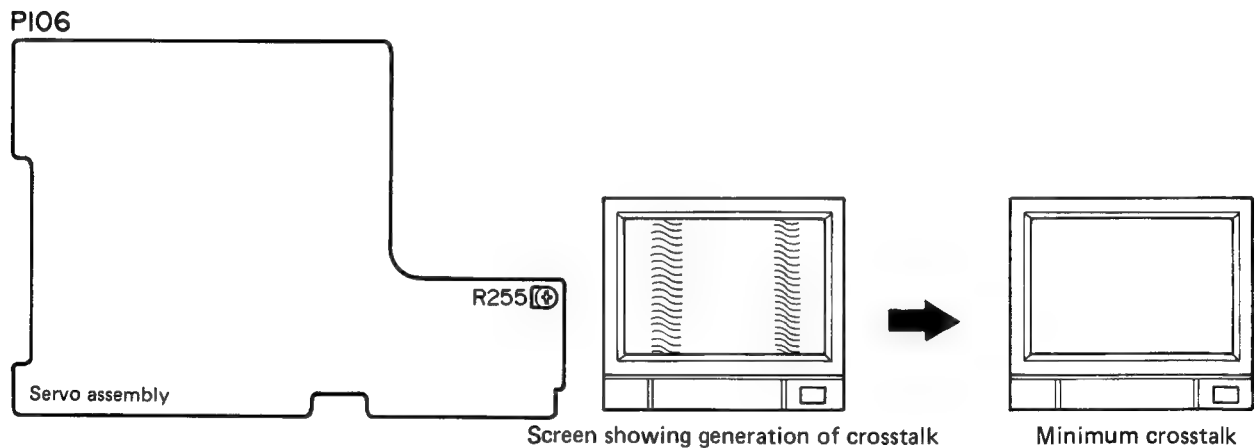
- Measuring instruments and fixtures
- Measuring position
- Test disc and player mode
- Adjustment position

- TV monitor
- Player video output terminals
- LD test disc #313
- Servo assembly P106,  
Tilt Balance Control (R255)

#### Notice:

The LD test discs used in these adjustments may be either N series or F series. The frame numbers given in the text are N series numbers while those enclosed in parentheses are F series numbers.

#### Connection diagram



#### Adjustment Procedure

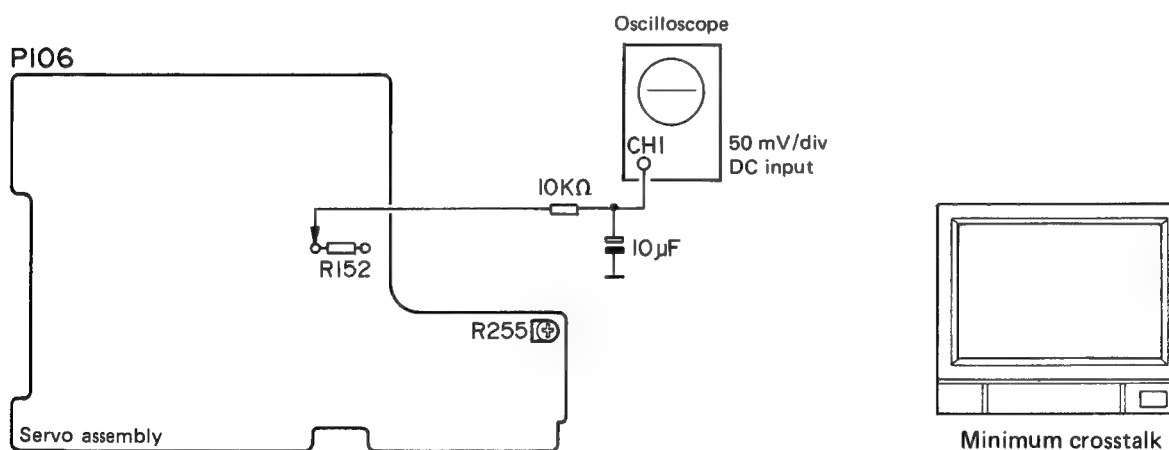
1. Play an LD test disc, and search to frame #313.
2. Turn R255 on the servo assembly board clockwise so that a crosstalk appears on the left side of the monitor screen.
3. Then, turn R255 counterclockwise carefully so that the crosstalk at the left side of the screen becomes minimum, then stop turning. (Pay attention not to exceed the point where the crosstalk is minimum.)

## D-2 Tilt levelness check and adjustment

- Purpose: Make the tilt chassis be flat against the non-warped disc.
- Symptoms indicating need for adjustment: When a warped disc is loaded, the distance between the disc and the pickup cover becomes insufficient.

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Measuring instruments and fixtures</li> <li>• Measuring position</li> <li>• Test disc and player mode</li> <li>• Adjustment position</li> </ul> | <ul style="list-style-type: none"> <li>• Resistors (10 k<math>\Omega</math>) • Capacitor (10 <math>\mu</math>F) • TV monitor</li> <li>• Read of R152 on Servo assembly • Player video output terminals</li> <li>• LD test disc #313 and #45,000</li> <li>• Servo assembly P106, Tilt Balance Control (R255)</li> </ul> |
|--|--|

### Connection diagram



### Adjustment procedure

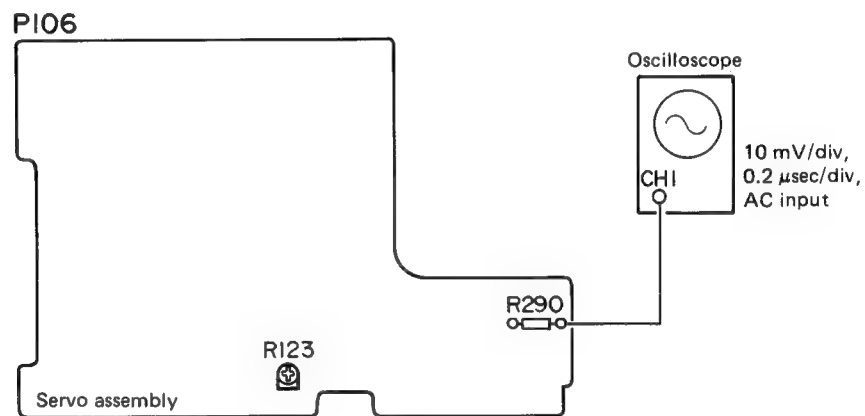
1. Play the LD test disc and search the frame #313.  
(Check that there is no warp on the disc beforehand.)
2. Connect the resistor, capacitor and an oscilloscope to the lead wire of R152 on the servo assembly board, as shown in the diagram.
3. Measure the DC voltage when the frame #313 is being played.
4. Then search the frame #45,000.
5. At this time, measure the DC voltage and check that the difference from that of #313 is within  $\pm 10$  mV.
6. If the measured value is out of standard, adjust R255 so that the DC voltage at #45,000 becomes  $\pm 10$  mV, using the DC voltage at #313 as a reference.
7. Search the frame #313 and check that the crosstalk does not appear on the monitor screen.  
If the crosstalk appears, perform the operation in item D-1. "Tilt Balance Adjustment" again.

### D-3 LD Focus (FOCS) Error Balance Adjustment

- Purpose: To ensure that the FOCS servo maintains the objective lens at the optimum distance from disc during LD playback.
- Symptoms indicating need for adjustment: Crosstalk.

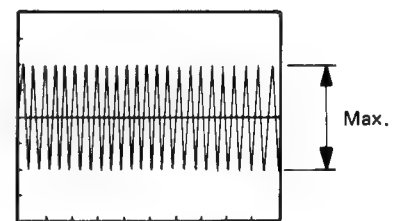
- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>● Measuring instruments and fixtures</li><li>● Measuring position</li><li>● Test disc and player mode</li><li>● Adjustment position</li></ul> | <ul style="list-style-type: none"><li>● Oscilloscope</li><li>● Lead of R290 on Servo assembly (RF signal)</li><li>● LD test disc #15,000 (TRKG servo: closed)</li><li>● Servo assembly P106, LD Focus Balance Control (R123)</li></ul> |
|---|--|

#### Connection diagram



#### Adjustment Procedure

1. Play an LD test disc and search to frame #15,000.
2. Connect the oscilloscope to the lead of R290 on the Servo assembly and observe the RF signal.
3. Adjust R123 on the Servo assembly to obtain an RF signal amplitude of maximum. (Fig. 19.)



RF Signal

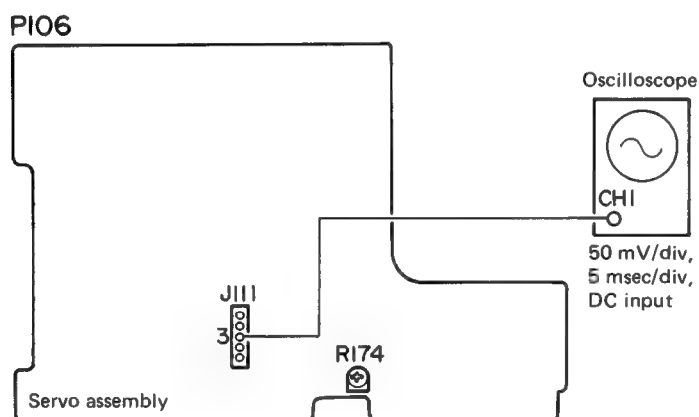
Fig. 19

#### D-4 Tracking (TRKG) Balance Adjustment

- Purpose: Adjust TRKG servo offset voltage to 0V.
- Symptoms indicating need for adjustment: Improper tracking (Jumping, Skipping etc.)

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Measuring instruments and fixtures</li> <li>• Measuring position</li> <li>• Test disc and player mode</li> <li>• Adjustment position</li> </ul> | <ul style="list-style-type: none"> <li>• Oscilloscope</li> <li>• Servo assembly J111-3 (TRKG error)</li> <li>• LD test disc #15,000</li> <li>• Test mode (TRKG servo open), Refer to "Test Mode Operation".</li> <li>• Servo assembly P106, Tracking Balance Control (R174)</li> </ul> |
|--|--|

#### Connection diagrams



#### Adjustment Procedure

1. Access Test Mode and Play an LD test disc.
2. Press the DISPLAY key to display the frame No. on the TV screen.
3. Move the pick-up to frame #15,000 by scanning or searching using unit's key's.
4. Open the TRKG servo.
5. Connect the oscilloscope to J111-3 of the Servo assembly and observe the waveform.
6. Align the oscilloscope GND with the center of the oscilloscope screen.
7. Adjust R174 in the Servo assembly to a position where the positive and negative halves of the TRKG error waveform are equal. (See Photo 1.)

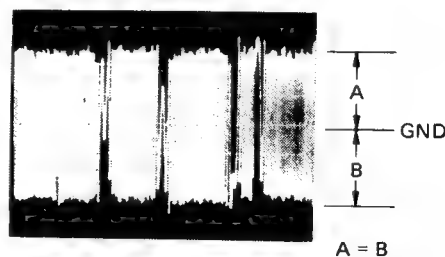


Photo 1.



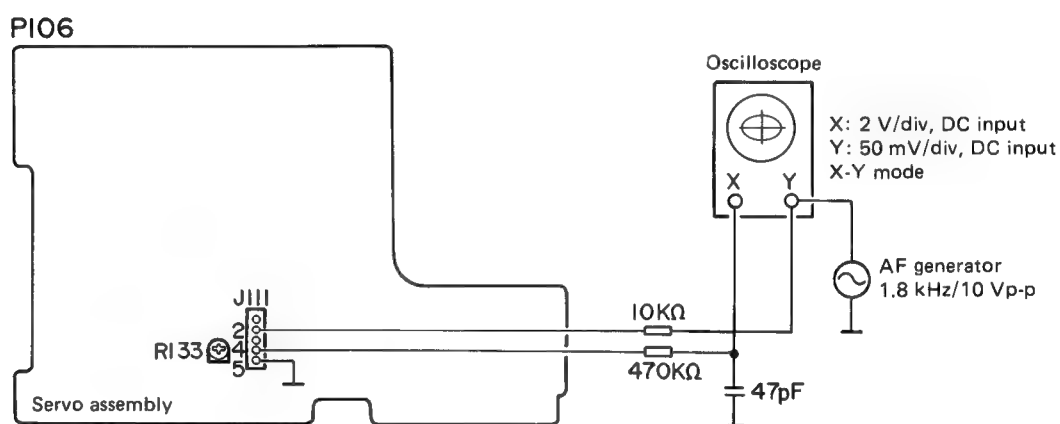
## D-5 FOCS Servo Loop Gain Adjustment

- Purpose: Adjustment of FOCS servo loop gain to the optimum value.
- Symptoms indicating need for adjustment: Degraded playability

- Measuring instruments and fixtures
- Measuring position
- Test disc and player mode
- Adjustment position

- Oscilloscope
- Resistors (10 k $\Omega$ , 470 k $\Omega$ )
- Capacitor (47 pF)
- AF generator
- Servo assembly J111-4 (FOCS error), J111-2 (FOCS gain)
- LD test disc #15,000 (TRKG servo: closed)
- Servo assembly P106, Focus Gain Control (R133)

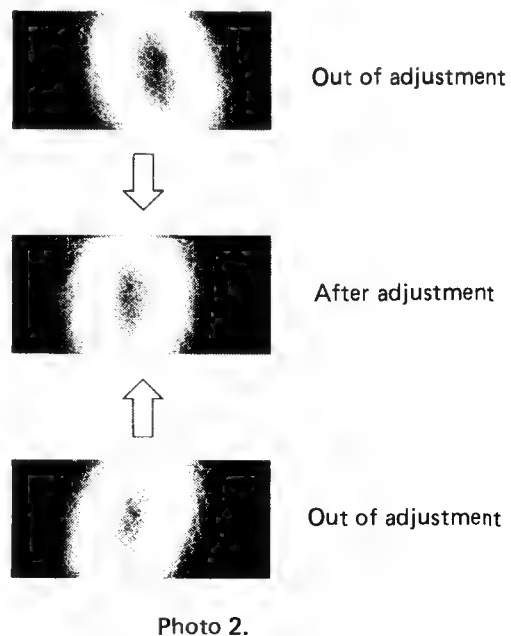
### Connection diagram



### Adjustment Procedure

1. Connect the resistors, capacitor, AF generator and oscilloscope to J111 on the Servo assembly as shown in the diagram.
2. Set the AF generator output to 1.8 kHz/10 Vp-p.
3. Put the oscilloscope into X-Y mode, and observe the Lissajous figures.
4. Adjust R133 on the Servo assembly until the Lissajous figures become symmetrical along the respective X and Y axes of the oscilloscope. (Photo 2.)

*Note: If the disc surface is scratched, the waveforms cannot be read due to noise. Be sure to use a disc which is not damaged.*



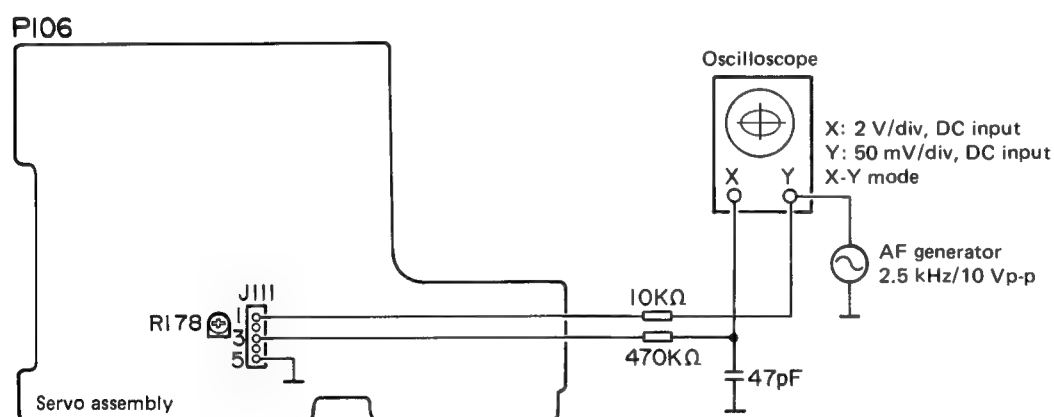
## D-6 TRKG Servo Loop Gain Adjustment

- Purpose: Adjustment of TRKG servo loop gain to the optimum value.
- Symptoms indicating need for adjustment: Degraded playability

If the disc surface is scratched, the waveforms cannot be read due to noise. Be sure to use a disc which is not damaged.

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Measuring instruments and fixtures</li> <li>• Measuring position</li> <li>• Test disc and player mode</li> <li>• Adjustment position</li> </ul> | <ul style="list-style-type: none"> <li>• Oscilloscope</li> <li>• Resistors (10 k<math>\Omega</math>, 470 k<math>\Omega</math>)</li> <li>• Capacitor (47 pF)</li> <li>• AF generator</li> <li>• Servo assembly J111-1 (TRKG error), J111-3 (TRKG gain)</li> <li>• LD test disc #15,000 (TRKG servo: closed)</li> <li>• Servo assembly P106, Tracking Gain Control (R178)</li> </ul> |
|--|--|

### Connection diagram



### Adjustment Procedure

1. Play an LD test disc and search to frame #15,000.
2. Connect the resistor, AF generators, capacitor and oscilloscope to J111 on the Servo assembly as shown in the diagram.
3. Set the AF generator output to 2.5 kHz/10 Vp-p.
4. Put the oscilloscope into X-Y mode, and observe the Lissajous figures.
5. Adjust R178 on the Servo assembly until the Lissajous figures become symmetrical along their respective X and Y axes of the oscilloscope. (Photo 3.)

*Note: If the disc surface is scratched, the waveforms cannot be read due to noise. Be sure to use a disc which is not damaged.*

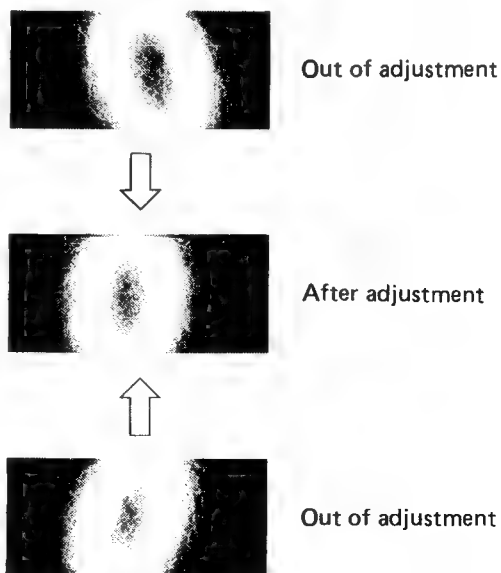


Photo 3.

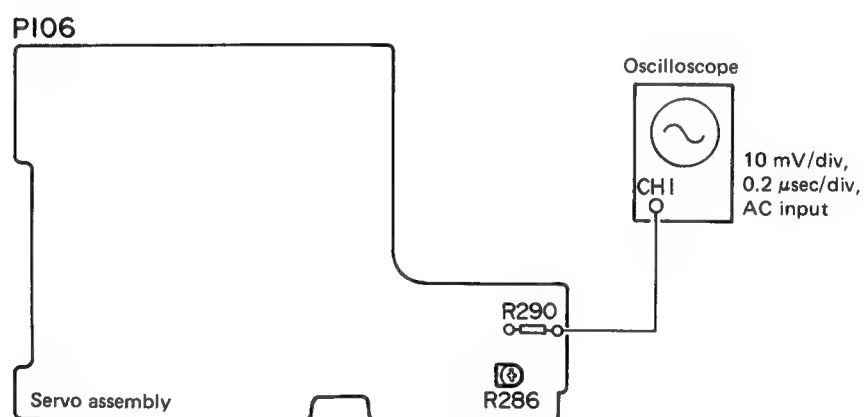
## D-7 RF Gain Adjustment

- Purpose: Adjustment of RF signal amplitude to the optimum value.
- Symptoms indicating need for adjustment: Frequent drop-out

- Measuring instruments and fixtures
- Measuring position
- Test disc and player mode
- Adjustment position

- Oscilloscope
- Lead of R290 on Servo assembly (RF signal)
- LD test disc #15,000 (TRKG servo: closed)
- Servo assembly P106, RF Gain Control (R286)

### Connection diagram



### Adjustment Procedure

1. Play an LD test disc and search to frame #15,000.
2. Connect the oscilloscope to the lead of R290 on the Servo assembly and observe the RF signal.
3. Adjust R286 on the Servo assembly to obtain an RF signal amplitude of  $1.2V \pm 50 \text{ mV}$ . (Fig. 20.)

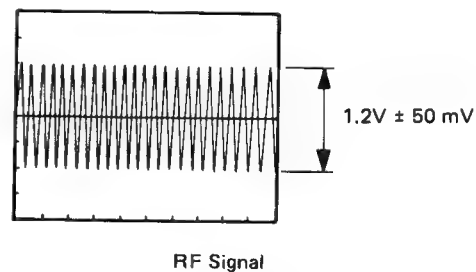
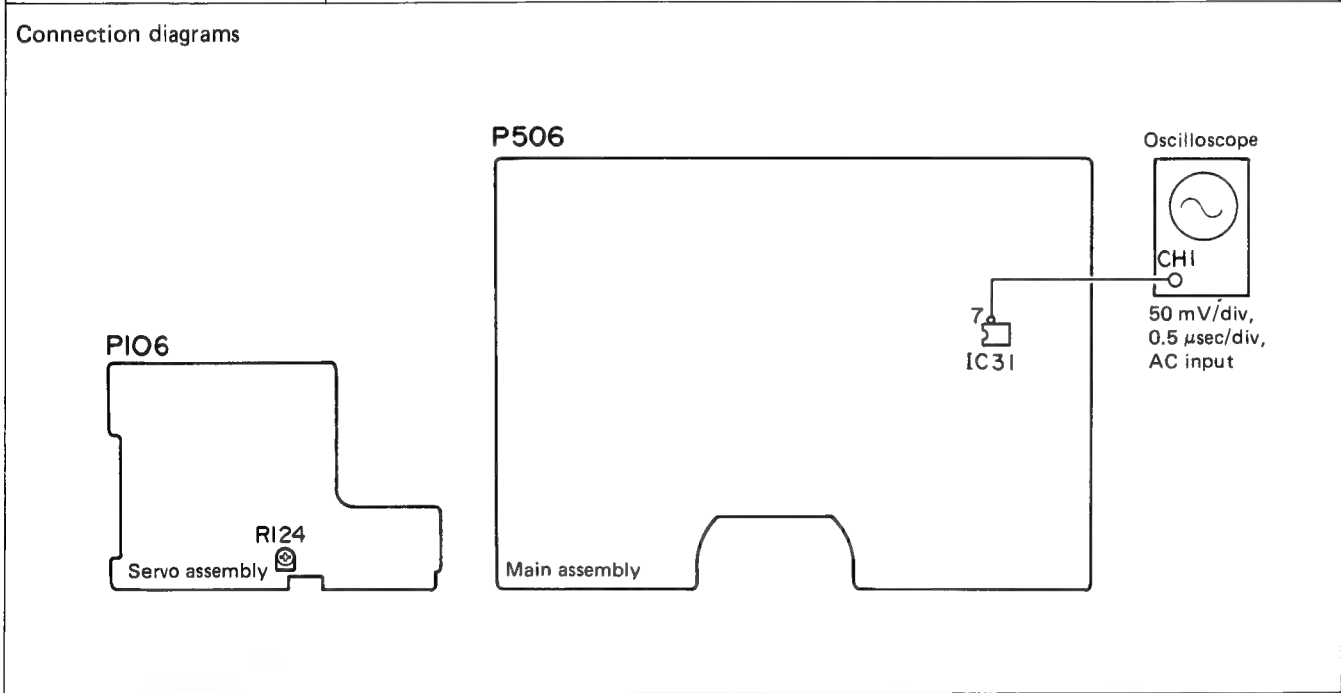


Fig. 20

D-8 CD FOCS Error Balance Adjustment

<ul style="list-style-type: none"><li>● Purpose: To ensure that the FOCS maintains the objective lens at the optimum distance from the disc during CD playback.</li><li>● Symptoms indicating need for adjustment: Noise in CD playback sound</li></ul>	
<ul style="list-style-type: none"><li>● Measuring instruments and fixtures</li><li>● Measuring position</li><li>● Test disc and player mode</li><li>● Adjustment position</li></ul>	<ul style="list-style-type: none"><li>● Oscilloscope</li><li>● Main assembly P506, IC31 pin 7</li><li>● CD test disc (Philips 5A)</li><li>● Servo assembly P106, CD Focus Balance Control (R124)</li></ul>



Adjustment Procedure

1. Play a CD test disc.
2. Connect the oscilloscope to pin 7 of IC31 on the Main assembly, and observe the EFM signal (eye pattern).
3. Adjust R124 on the Servo assembly until the EFM signal reaches maximum amplitude. (Photo 4.)

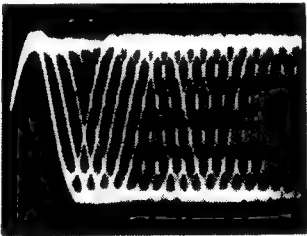


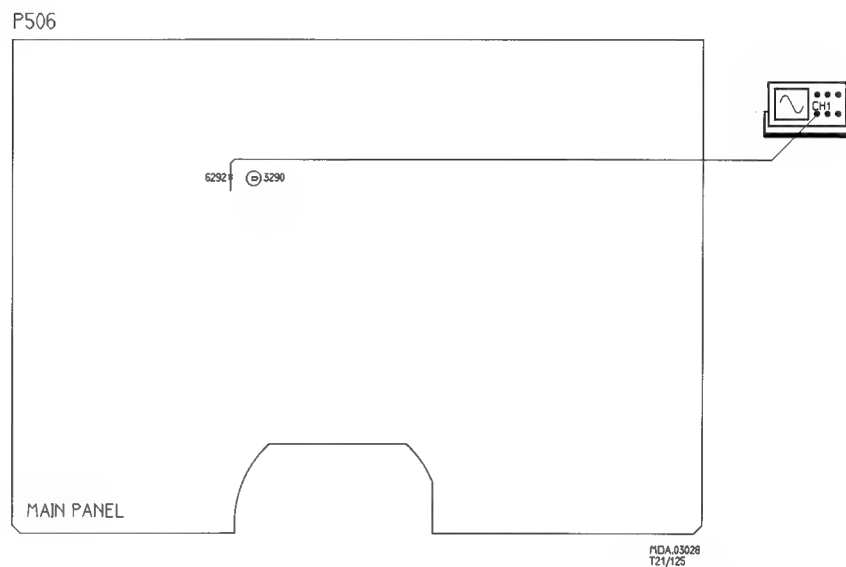
Photo 4. EFM signal

## E. Main panel adjustments

- Purpose: Optimization of the CCD delay line for T.B.C.
- Symptoms indicating need for adjustment: Color lock failure, slow color lock after search.

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>• Measuring instruments</li><li>• Measuring position</li><li>• Test disc and player mode</li><li>• Adjustment position</li></ul> | <ul style="list-style-type: none"><li>• Oscilloscope</li><li>• Main panel, Diode 6292 kathode</li><li>• LD testdisc, play</li><li>• Main panel, potmeter 3290</li></ul> |
|--|---|

### Connection diagram



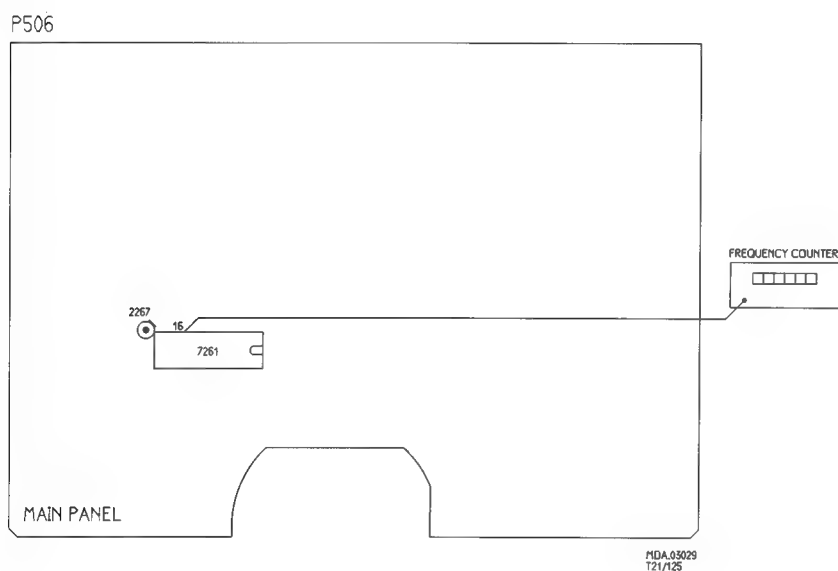
### Adjustment Procedure

1. Play LD testdisc
2. Connect oscilloscope to the kathode of 6292
3. Adjust 3290 for a DC-level of 0 volt

- Purpose: Reference clock frequency adjustment
- Symptoms indicating need for adjustment: Bad drop out signal

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Measuring instruments</li> <li>• Measuring position</li> <li>• Test disc and player mode</li> <li>• Adjustment position</li> </ul> | <ul style="list-style-type: none"> <li>• Frequency counter</li> <li>• Main panel, IC726 pin 16</li> <li>• Switch power on without playing disc.</li> <li>• Main panel, 17.7 MHz control 2267</li> </ul> |
|---|---|

#### Connection diagram



#### Adjustment Procedure

1. Switch on power, and connect a frequency counter to pin 16 of IC7261 on the main panel
2. Adjust 2267 until the reference frequency reads 8.867238Hz  $\pm$  6 Hz

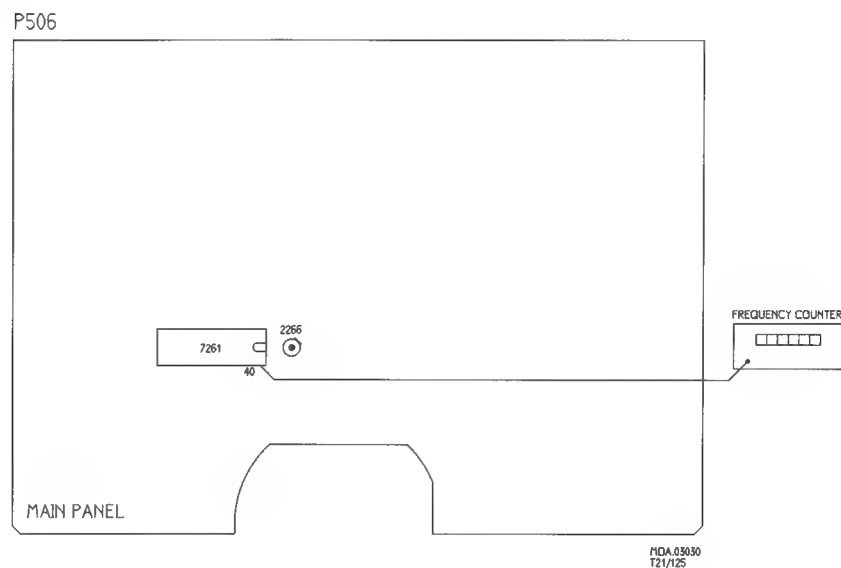
- Purpose: Reference clock adjustment

- Symptoms indicating need for adjustment: Color aberration, spindle servo lock failure

- Measuring instruments
- Measuring position
- Test disc and player mode
- Adjustment position

- Frequency counter
- Main panel, IC7261 pin 40
- Switch power on without playing disc.
- Main panel, 7.5 MHz control 2266

#### Connection diagram



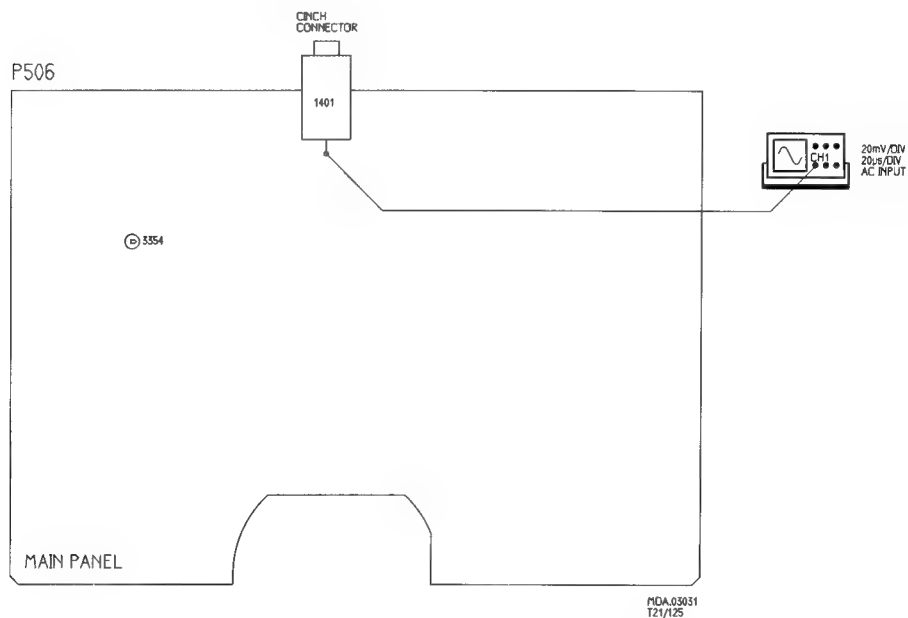
#### Adjustment Procedure

1. Switch on power, and, connect a frequency counter to pin 40 of IC7261 on the main panel
2. Adjust 2266 until the reference clock frequency reads 7.50000 MHz  $\pm$  10 Hz

- Purpose: Adjustment of the amplitude of the output video signal
- Symptoms indicating need for adjustment: Too dark or too bright picture, TXT malfunctions.

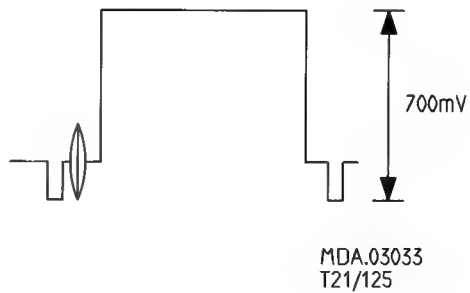
- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Measuring instruments</li> <li>• Measuring position</li> <li>• Test disc and player mode</li> <li>• Adjustment position</li> </ul> | <ul style="list-style-type: none"> <li>• Oscilloscope</li> <li>• Main panel, cinch connector 1401 (top)</li> <li>• LD test disc, white picture</li> <li>• Main panel, video level control 3354</li> </ul> |
|---|---|

#### Connection diagram



#### Adjustment Procedure

1. Play a LD test disc, white picture
2. Connect oscilloscope to the cinch connector (top)
3. Adjust for a video amplitude of 700 mV with 3354 (with 75  $\Omega$  load)



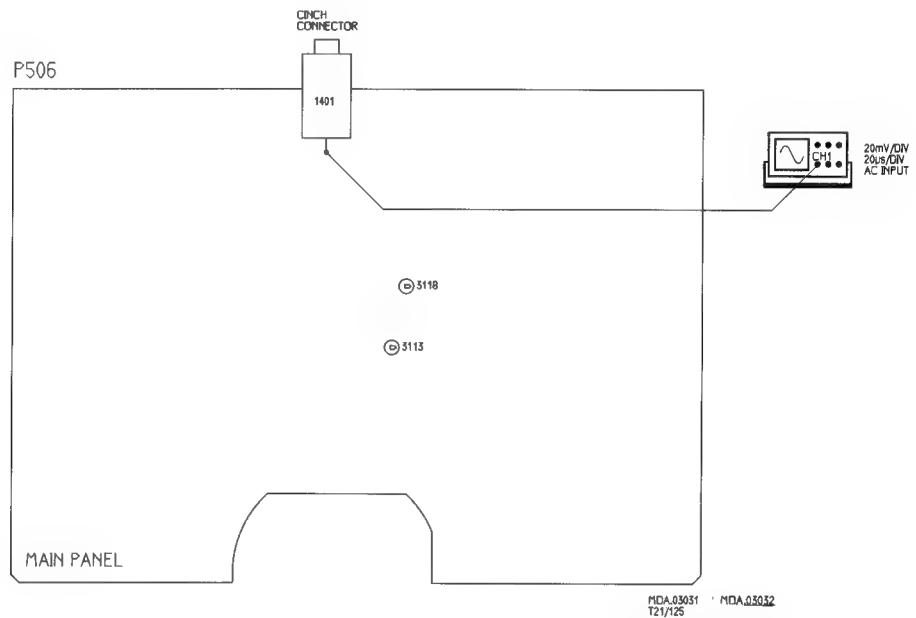


- Purpose: Minimize color flicker in special playing modes.
- Symptoms indicating need for adjustment: Color flicker in special playing modes.

- Measuring instruments
- Measuring position
- Test disc and player mode
- Adjustment position

- TV monitor, Oscilloscope
- Main panel, cinch connector 1401 (top)
- LD test disc, still picture color bar.
- Man panel, 3113 and 3118.

#### Connection diagram



#### Adjustment Procedure

1. Play a LD test disc, colorbar still picture frame 260
2. Connect oscilloscope to the CVBS-cinch connector (top) 1401. Adjust 3113 for minimum flicker in the chrominance signal. Check also TV monitor

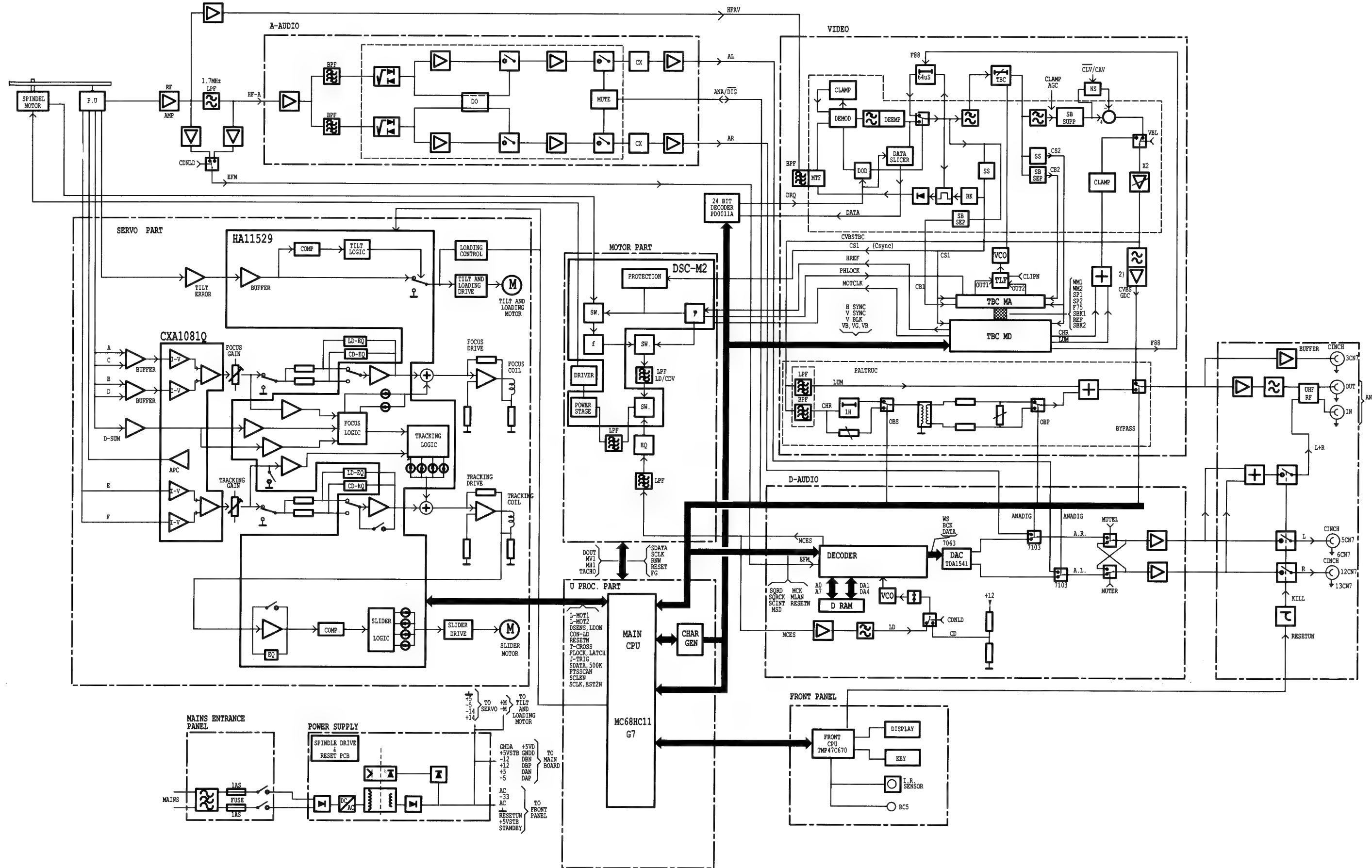
## ABBREVIATION LIST

24DATA	24-bits Data	CSYNC	Composite Sync.
A/D	Analog/Digital Select	CTL	Control Register
A-AUDIO	Analog Audio	CUP	Capacitor Up
AC	Accumulator	CV	Composite Video Signal
ACC	Automatic Color Control	CVBS	Composite Video Burst Signal
ACK	Acknowledge	CWB1,2	External Loop Filter
ACK	Automatic Color Killer	CX	CX Noise Reduction
ADD, SUB SW	Addition, Subtraction Switch	CX-NR	CX Noise Reduction
ALT PLS	Line Alternate Pulse	D.O.D	Drop-out Detector
AM	Additional Mute	D-OUT	Digital Output
ANTSW	Antenna Switch	D-RAM	Dynamic Random Access Memory
AOL	L-ch Output	D-SUM	Detector Sum Level
AOR	R-ch Output	D1,2	2-bits Setting for The Commutation Block
APC	Automatic Power Controller	DAAB	Data
APC	Automatic Phase Control	DABD	Data
ASY	Automatic Asymmetry Control	DAC	Detector Sum AC
ATN	Attention	DAN	Drive-A, Negative
ATSB	Attenuation	DAP	Drive-A, Positive
ATT	Attenuate	DATA REQ	24-bits Data Request
B.P.F	Band-pass Filter	DBN	Drive-B, Negative
B.R.F	Band-rejection Filter	DBP	Drive-B, Positive
B&W	Black & White	DDR	Data Direction Register
BA	Bus Available	DEEM	De-emphasis Output
BCK	Bit Clock	DEM	Demodulator
BF	Burst Flag	DEMO L	L-Channel Demodulator
BINPC	Input a B Color Signal from Personal Computer	DEMO R	R-Channel Demodulator
BINTV	Input a B Color Signal from TV	DEMODO	Demodulator
BLK PLS	Blanking Pulse	DET	Detector
BO	Data Bus	DIN	Serial Data Input
BSET	Brake Current Setting	DINT	Data Interpolated Input
BULDET	Burst Limiter and Detector	DL AMP	Delay Line Amp.
BUS CON	Bus Control	DLA IN	Delay Line Amp. Input
C IN (OUT)	Chroma Signal Input (Output)	DOB	Drop-out Not Input
C SYNC	Composite Sync.	DOS	Drop-out Sense
CAS	Column Address Select	DOUT	Data Output
CAV	Constant Angular Velocity	DP	Data Pointer
CAV/CLV	CAV/CLV Select	DREQ	Data Request
CB	Color Burst	DRQ	24-bits Data Request
CCD 453 ST	CCD 453 Stage	DSENSE	Disc Sensor Input
CD	Compact Disc	E	System Clock
CD/LD	CD/LD Select	E	E-Register
CDO	Capacitor Down	EFAB	Error Flag
CDROM	CD-ROM	EFAS	Error Flag A-Chip (Decoder) to Servo
CDV	Compact Disc Video	EFL	Enable Frequency Loop
CE	Chip Enable	EFM	8-14 Modulation
CHR SEP	Chroma Separator	EI	E-Amp. Input
CHRBUSY	Character Busy	EO	E-Amp. Output
CHRCCLK	Character Generator Clock	EQ	Equalizer
CHRDAT	Character Data	ERF	Error Flag
CHRDAT	Character Data	ERF	Error Flag
CHROUT	Chroma Output	ESTOP	Emergency Stop
CHRSTB	Character Strobe	ETL	Enable Tacho Loop
CIRC	Cross-Interleaved Reed-Solomon Code	EXTAL	External Clock Input
CLAB	Clock	F44	Clock Output (f-sub)
CLBD	Clock	F75	Clock Input (7.5MHz)
CLK	Clock Input	F75	System Clock
CLP	Clamp	F88	Clock Output (2 x f-sub)
CLR	Clear	FB	Feedback
CLV	Constant Linear Velocity	FCD	Focus Error Amp. CD Input
COMP	Clock Duty Defect	FE	Focus Error
COMP.	Comparator	FEBIAS	Focus Error Bias
COMPAR	Comparator	FEG	Focus Error Gain Amp. Input
CPU	Central Processing Unit	FEGA	Focus Error Gain Amp. Output
CRI	Counter Reset Inhibit	FF	Flip Flop
CS	Chip Select	FG	Spindle Frequency Generator
CSI	Composite Sync.	FIAT	Burst Fiat
		FL	Focus Lock
		FLD	Focus Error Amp. LD Input

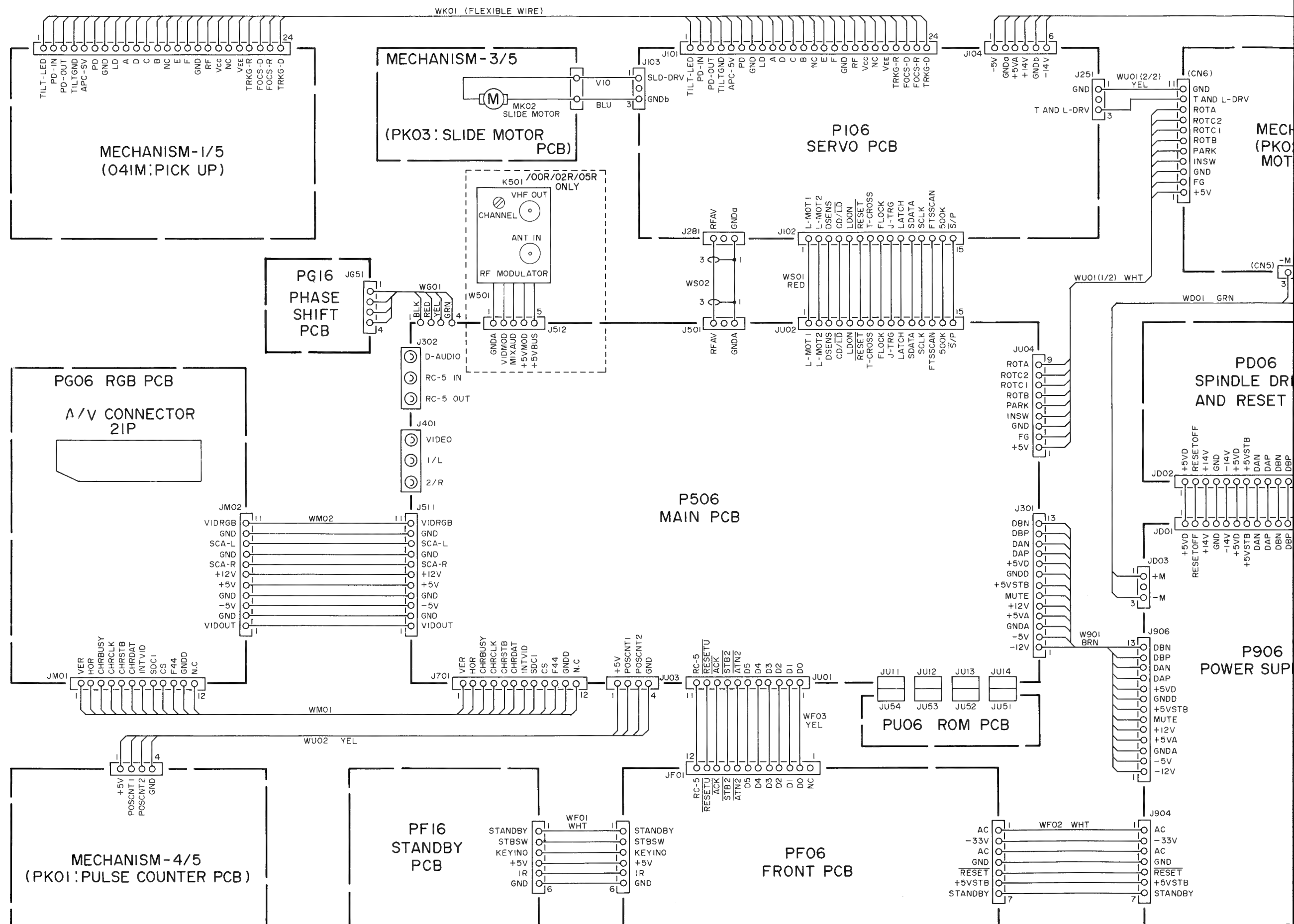
FLOCK	Focus Lock	MV	Protected Vertical Sync.
FM DEM	FM Demodulator	NR	Noise Reduction
FOCS	Focus	NT/PAL	NTSC/PAL
FOCS-D	Focus Drive	O.S.D	On-screen Display
FOCS-R	Focus Return	OC	Oscillator Control Input
FOK	Focus OK	ODEN	Output Disable
FOST	Focus Error Amp. Offset Adjust	OE	Output Enable
FPO	Focus OP-Amp. Output	OSC	Oscillator
FTD	Fluorescent Tube Display	OSP	Over Speed Detection
FTSSCAN	FTS (Favorite Track Selection) Scanning	OUTM	Comparator 3 Output
f	Frequency	OUTP	Comparator 2 Output
G0 — 12	Digit 0 — 12	P.U	Pickup
GEN	Generator	P/B DOBM	Digital Audio Output
GINPC	Input a G Color Signal from Personal Computer	P/N	P-Sub/N-Sub for Laser Diode
		P/N	PAL/NTSC
GINTV	Input a G Color Signal from TV	P/S	Play/Still
H PLS	Horizontal Pulse	PARK	Park Switch Input
H.P.F	High-pass Filter	PC	Personal Computer
H-SYNC	Horizontal Synchronizing Signal	PD	Photo Diode
HALF PICT	Half Picture	PD	Phase Detector Output
HALL A (B,C)	Input from Hall Motor	PHLOCK	Phase Lock
HFD	High-Frequency Detector	PLN	PAL/NTSC Selection Input
HFI	High-Frequency Input	PLN	PAL/NTSC Selection
HOR	Horizontal Sync.	PLOCK	Phase Locked Loop
I/O	Input/Output	PLOCK	Motor Phase Lock Signal
I-V	Current/Voltage Converter	POS	Position Sensor
INIT	Reset Input	POSCNT	Position Control
INJ	Injection Current Setting	POWSTB	Power Stand-by
INSW	Inside Switch	PR1 — 4	Tacho Pulse Divider
INT	Interrupt	PRE-FIFO	Pre Fast In Fast Out
INTVID	Internal Video	PRES	Preset
INV	Inverter	PWM	Pulse Width Modulation
IR SENSOR	Infrared Sensor	Q-DATA	Q-Channel Data
IREF	Current Reference	QCL	Q-Channel Clock
IRQ	Interrupt Request	QRA	Q-Channel Request Input/Acknowledge Output
ISCT	Internal Current Setting		
J-TRG	Jump Trigger	R/W	Read/Write Select
JUMP	Jump Trigger Input	R/W	Read/Write
KEYINO	Key In, 0	RAMP	Adjust for Ramp of Up-Down Signal
L.P.F	Low-pass Filter	RAS	Row Address Select
L-MOT	Loading Motor Control	RC DECODE	Remote Control Code Decode
LD	Laser Diode	RD	Read
LD	Laser Disc	REF0 — 6	7-bits Reference Rotation Speed
LDON	Laser Diode ON/OFF	REFN	Reference Selection
LE	Latch Enable	REG	Regulator
LIM	Limiter	RESETu	Reset of u-processor
LIR	Load Instruction Register	REV	Reverse Speed Detection
LSEL	Left Channel Select	RF-	RF Summing Amp.-Input
M.A	Measurement Analog	RF0	RF Summing Amp. Output
M.D	Measurement Digital	RFA	RF (Audio)
MCES	Motor Control Error Signal	RFAV	RF (Audio/Video)
MCIN	Motor Control Error Signal Input	RH	Reference Horizontal
MECHA SW	Mechanism Switch	RH1	Horizontal Line Video Reference Signal
MEPIB	Measurement Point In The Burst	RINPC	Input an R Color Signal from Personal Computer
MFE	Motor Frequency Error		
MH	Protected Horizontal Sync.	RINTV	Input an R Color Signal from TV
MIRR	Mirror Comparator Output	RLS	Radial Loop Switch
MIX-A	Mix Audio Signal	RNW	Read/Write Select
MIXAUD	Mix Audio Signal	ROM	Read Only Memory
MOTRES	Motor Reset	ROTA	Rotary Encoder Input A
MP0	Mode Program 0	ROTB	Rotary Encoder Input B
MP1	Mode Program 1	ROTC	Rotary Encoder Control
MPE	Motor Phase Error	RSEL	Right Channel Select
MPLL	Motor in Frequency Control Range	RST	Reset
MS	Multi-Standard Input	S/H	Sawtooth and Sample and Hold
MSC	Motor Speed Control	S/P	Still/Play
MTF	Modulation Transfer Function	S-COMP	Slider Comparator
MUSB	Mute	S-TERMINAL	Super Video Output Terminal

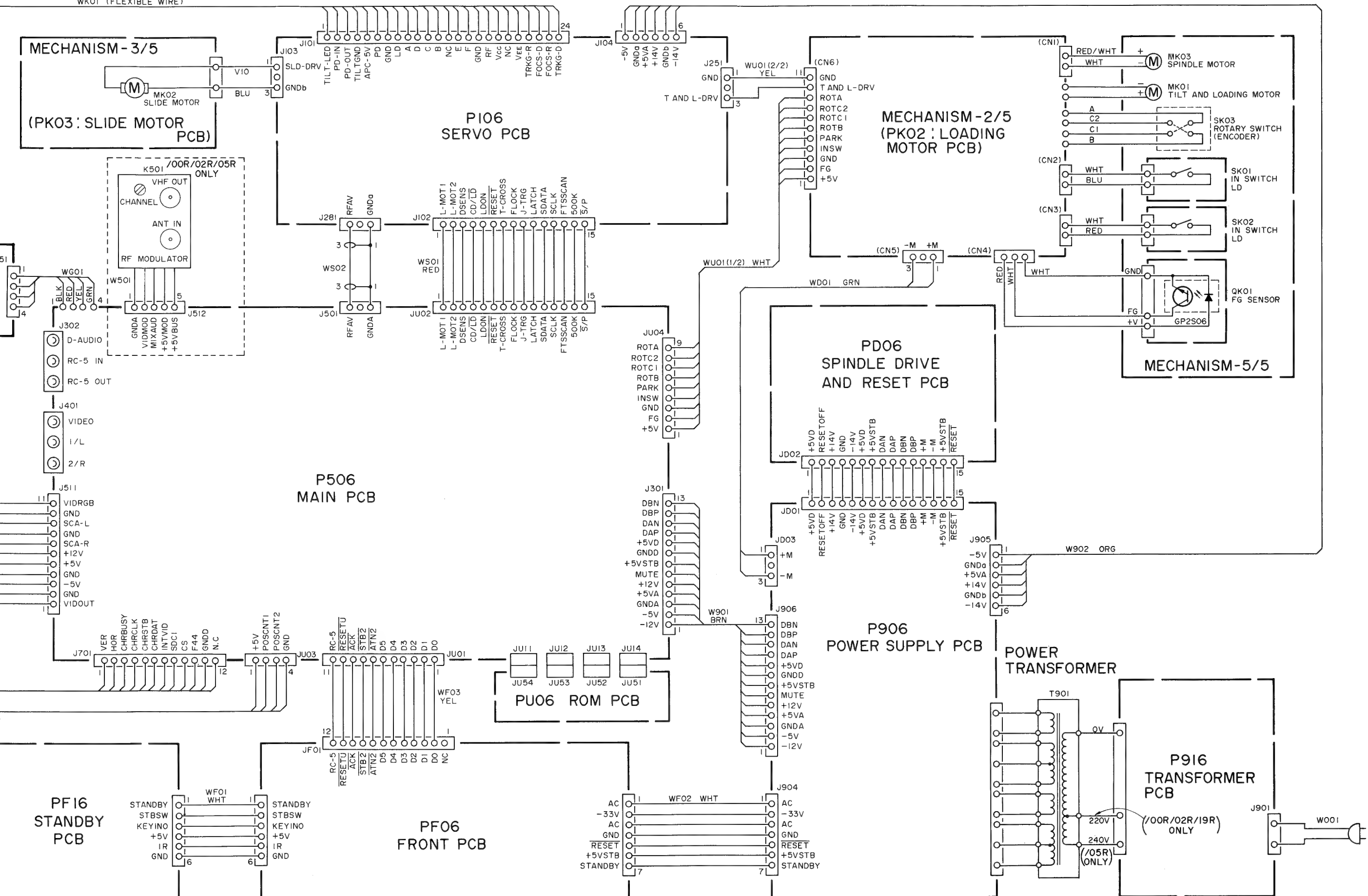
S-VIDEO	Super Video	VCAR	Voltage Controlled Amplifier, R-ch
S1 — S6	Analog Switch	VCL	Character Level
SBK	Set Burst Key	VCXO	Voltage Controlled X'tal Oscillator
SC	Sub-carrier	VDC/2	Reference Voltage Capacitor Pad
SCA	A/V Connector, Audio Output	VDD/2	Reference Voltage Capacitor Pad
SCAB	Sub-coding Clock	VDDA	Supply Voltage (Analog)
SCI	Serial Clock Input	VER	Vertical Sync.
SCKN	Data-Clock Input	VHLF	Half-Luminance Input Color Encoder
SCLK	Serial Data Clock	VID IN	Video Input
SCOR	Sub-code Synchronization	VIDMOD	Video Modulator
SDAB	Sub-coding Data	VIDOUT	Video Signal to Output Connector
SDATA	Serial Data	VIDRGB	Video Signal to RGB Circuit
SDATAIN	Serial Data Input	VIDSCA	Video Signal to A/V Connector
SDATAOUT	Serial Data Output	VIDY/C	Video Y/C Signal
SDC	Sandcastle	VMON	Character Monitor Terminal
SDR	Slider Drive Signal	VOB	Voltage Auto Bias
SEG a — j	Segment a — j	VP	Supply Voltage
SEP.	Synchronizing Signal Separator	VREF	Reference Voltage Output
SGSW	Signal Generator Switch	VSSA	Analog Ground
SI	Selects Superimposition	VVL	Video Level
SLD-DRV	Slide Motor Drive	VXO	Voltage Controlled X'tal Oscillator
SLP	Slope Setting	WM	Window for Measuring
SLPI	Slider OP-Amp. Input	WR	Write
SLPO	Slider OP-Amp. Output	WS	Word Select
SP	Set Plateau Key	WSAB	Word Select
SSM	Start/Stop Motor Input	WSBD	Word Select
ST	Scan Trigger Pulse	WTO	Watch-dog Timer Output
STB	Strobe	XSYS	System Clock Output
STBSW	Standby Switch	XTAL	Crystal Oscillator
STBY	System Stand-by	Y IN (OUT)	Y Signal Input (Output)
STS	Status Register	YH	Y Signal Halftone
SUB Q	Sub-code Q-Data	YMIX	Y Signal Mix
SW1 — 4	System Select Switch	YS	Y Signal Superimpose
SWAB	Sub-coding Word Clock Output		
SWT	Internal Clock Divided by 256	ZRPM	Zero Rotation Detection
T-CROSS	Tracking Cross	φ	Phase
T&L-DRV	Tilt & Loading Motor Drive		
TADC	Tacho Input for DC Motor		
TBC	Time Base Corrector		
TBCERR	Time Base Correction Error		
TC	Time Constant		
TCD	Tracking Error Amp. CD Input		
TCNT	Track Count		
TD1,2	2-bits to Set The Slope of The Current Limiter		
TDR	Tracking Brake Drive Output		
TE	Tracking Error		
TGS	Tracking Gain Switching		
TIDR	Tilt Drive Signal		
TIPI	Tilt OP-Amp. Input		
TIPO	Tilt OP-Amp. Output		
TLD	Tracking Error Amp. LD Input		
TM	Timer		
TO1,2	Current Limiter (Accelerate or Brake)		
TOC	Table of Contents		
TOGL	Trick Play Toggle		
TOK	Tacho-OK Signal		
TP ADJ	Adjust The Burst Flag Position		
TPO	Tracking OP-Amp. Output		
TRKG	Tracking		
TRKG-D	Tracking Drive		
TRKG-R	Tracking Return		
TSET	Tilt Comparator Setting		
TSTB	Test Control Input		
UPDN	Lens Up-Down Output		
V.C.O	Voltage Controlled Oscillator		
V-SYNC	Vertical Synchronizing Signal		
VBL	Back Level		
VCAL	Voltage Controlled Amplifier, L-ch		

# VI BLOCKDIAGRAM

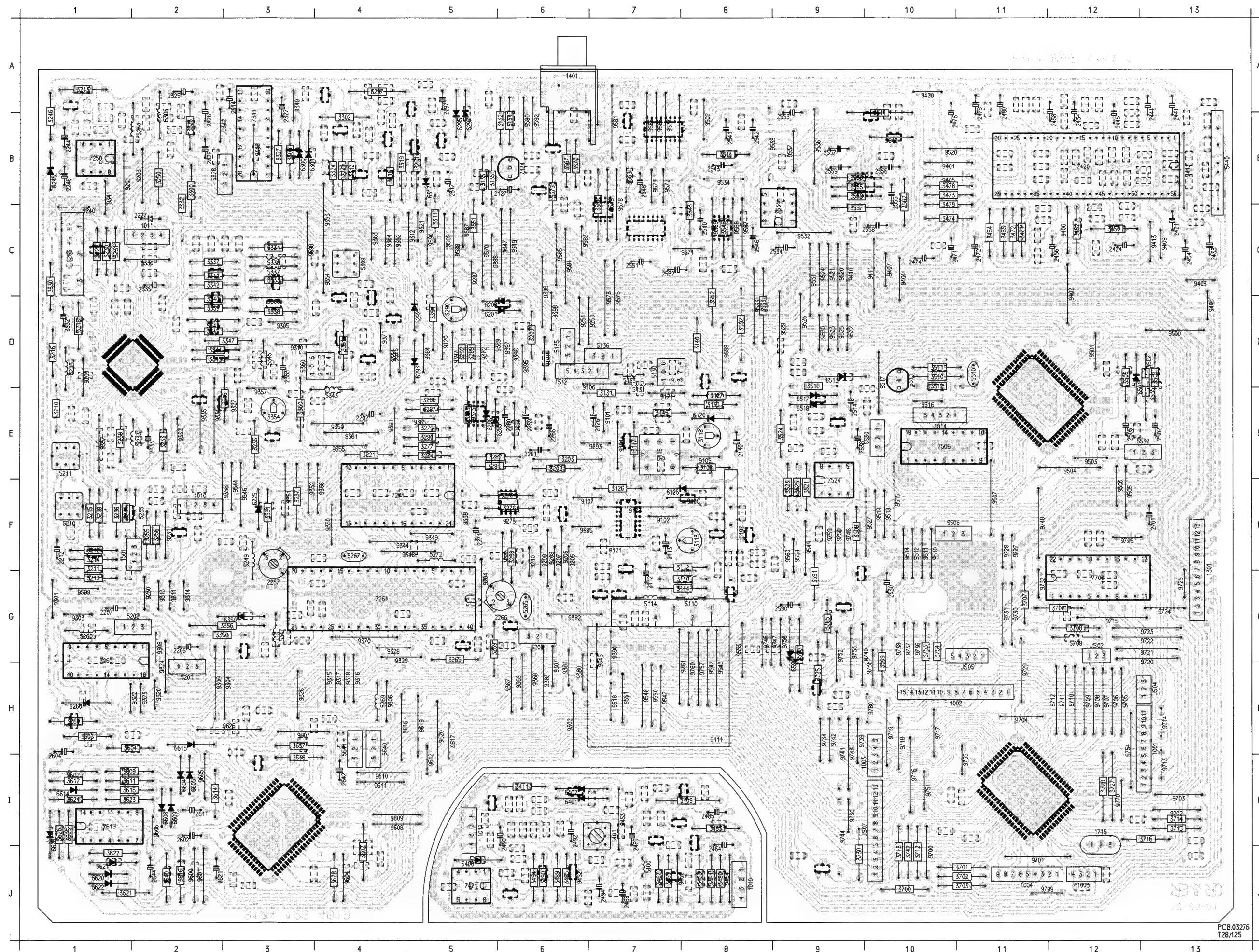


## IX. WIRING DIAGRAM





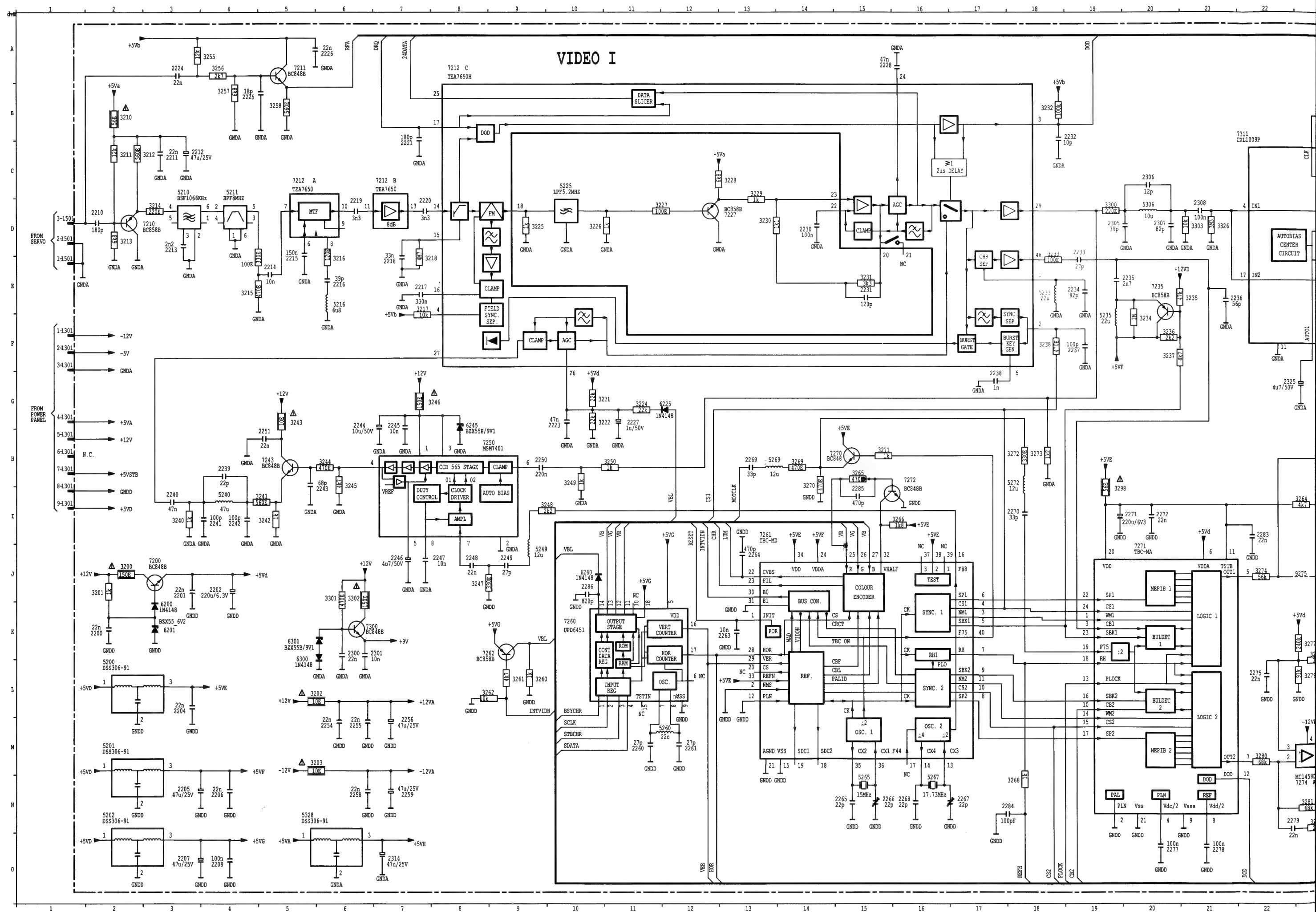


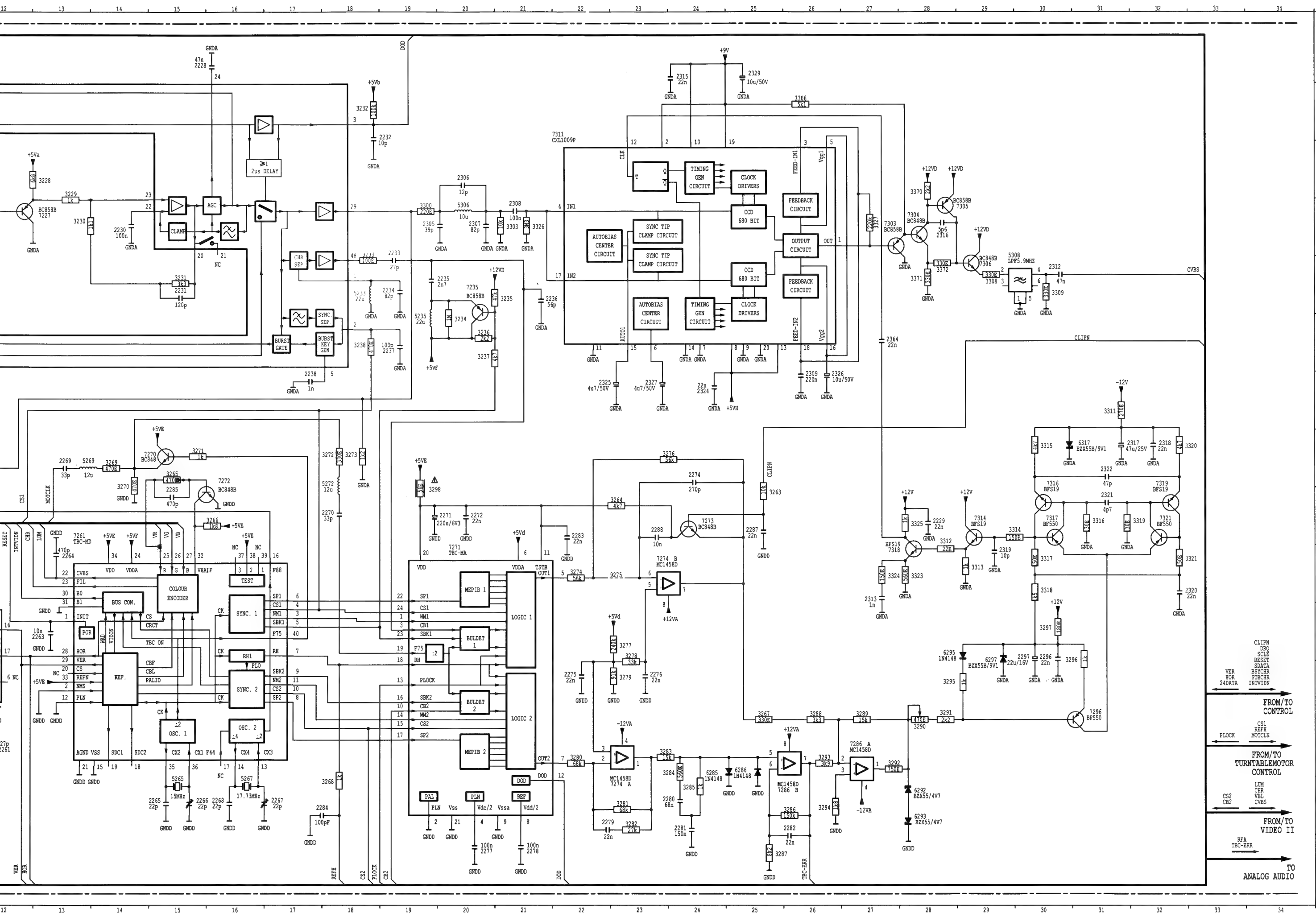


1001 I13	3256 F2	3715 I13	9307 H6	9547
1002 H1	3261 H1	3716 H1	9308 H2	9548
1003 J10	3265 H2	3717 H2	9309 H2	9549
1004 J11	3269 G5	3727 I12	9310 D3	9550
1010 F2	3274 E5	3728 I12	9311 G2	9551
1010 J8	3276 F6	3730 J9	9312 C5	9553
1011 C6	3277 F5	3742 J10	9313 G2	9555
1011 F1	3286 F5	3748 G10	9314 G2	9558
1011 I5	3289 E5	3754 G10	9315 H4	9560
1014 E10	3290 E5	5102 F8	9316 H4	9563
1301 C13	3281 E5	5110 G8	9317 H4	9565
1401 A6	3282 E5	5111 H8	9318 H4	9566
1501 F1	3283 E5	5114 G7	9319 C6	9568
1512 D6	3287 E5	5115 E7	9320 H2	9568
1715 I12	3289 D5	5130 D7	9321 H2	9569
2112 G7	3290 D5	5131 E7	9322 H2	9570
2113 F7	3291 D5	5132 G7	9323 H2	9571
2123 E7	3292 D5	5133 D7	9324 H2	9573
2127 B5	3293 E5	5136 D7	9325 D4	9573
2140 E8	3297 A4	5200 G6	9326 H3	9574
2202 E4	3298 F6	5201 H2	9327 E5	9575
2205 G2	3300 B2	5202 G1	9328 G4	9576
2207 A1	3301 C1	5210 F1	9329 H4	9578
2212 F1	3306 B3	5211 E1	9330 C2	9578
2244 B1	3311 C5	5216 D1	9331 D4	9579
2246 B1	3312 B4	5233 E2	9332 E2	9580
2246 B1	3313 B4	5235 F2	9333 E2	9582
2259 E6	3322 B4	5249 F3	9337 E1	9583
2266 G5	3324 B4	5255 C1	9339 F5	9584
2267 G3	3326 B2	5260 G1	9340 A5	9585
2270 F5	3327 B2	5265 G6	9341 B1	9587
2281 E6	3331 C1	5269 F4	9342 H4	9588
2287 B5	3332 C2	5272 F5	9344 F3	9590
2314 B3	3333 C3	5306 B2	9347 C6	9598
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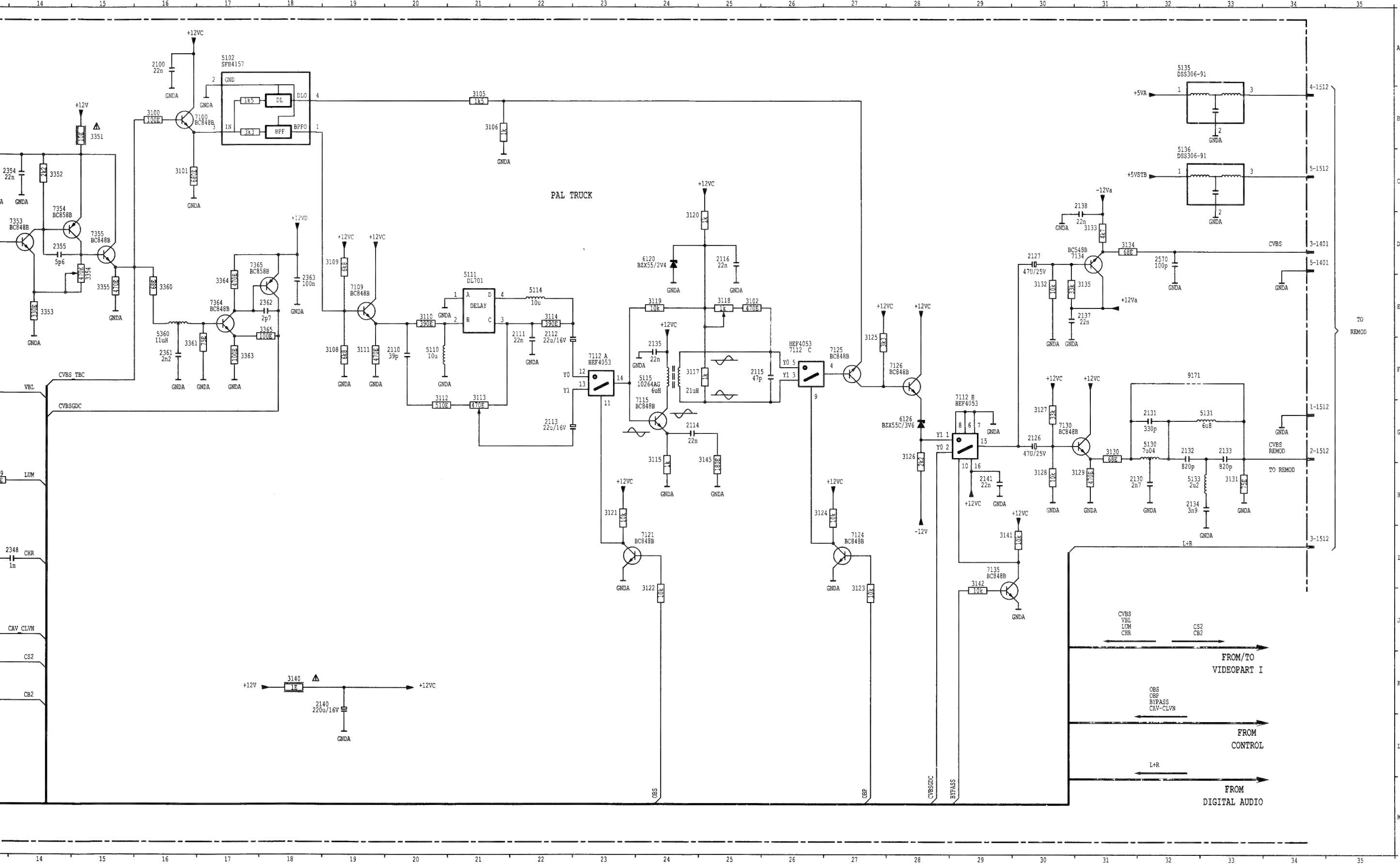






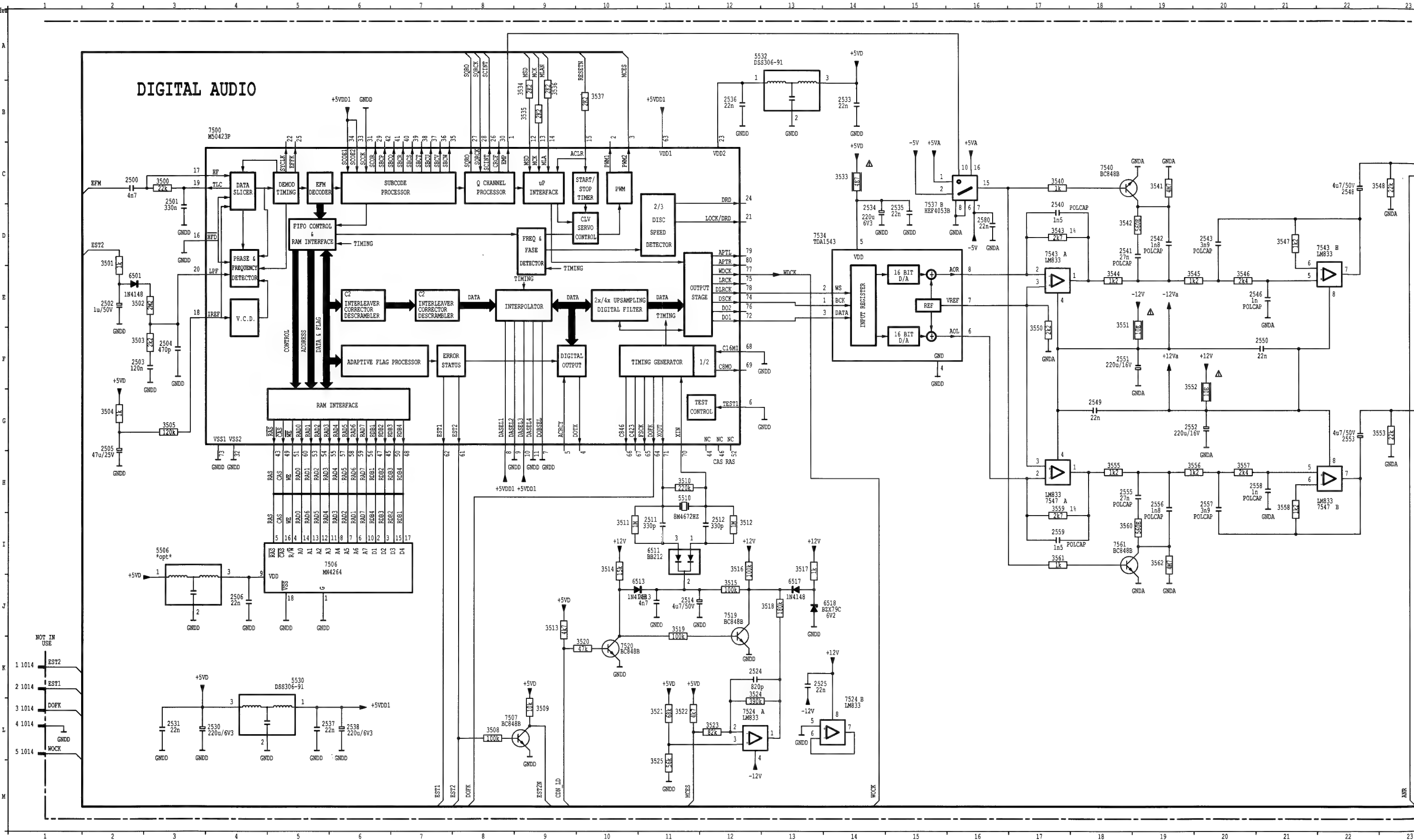


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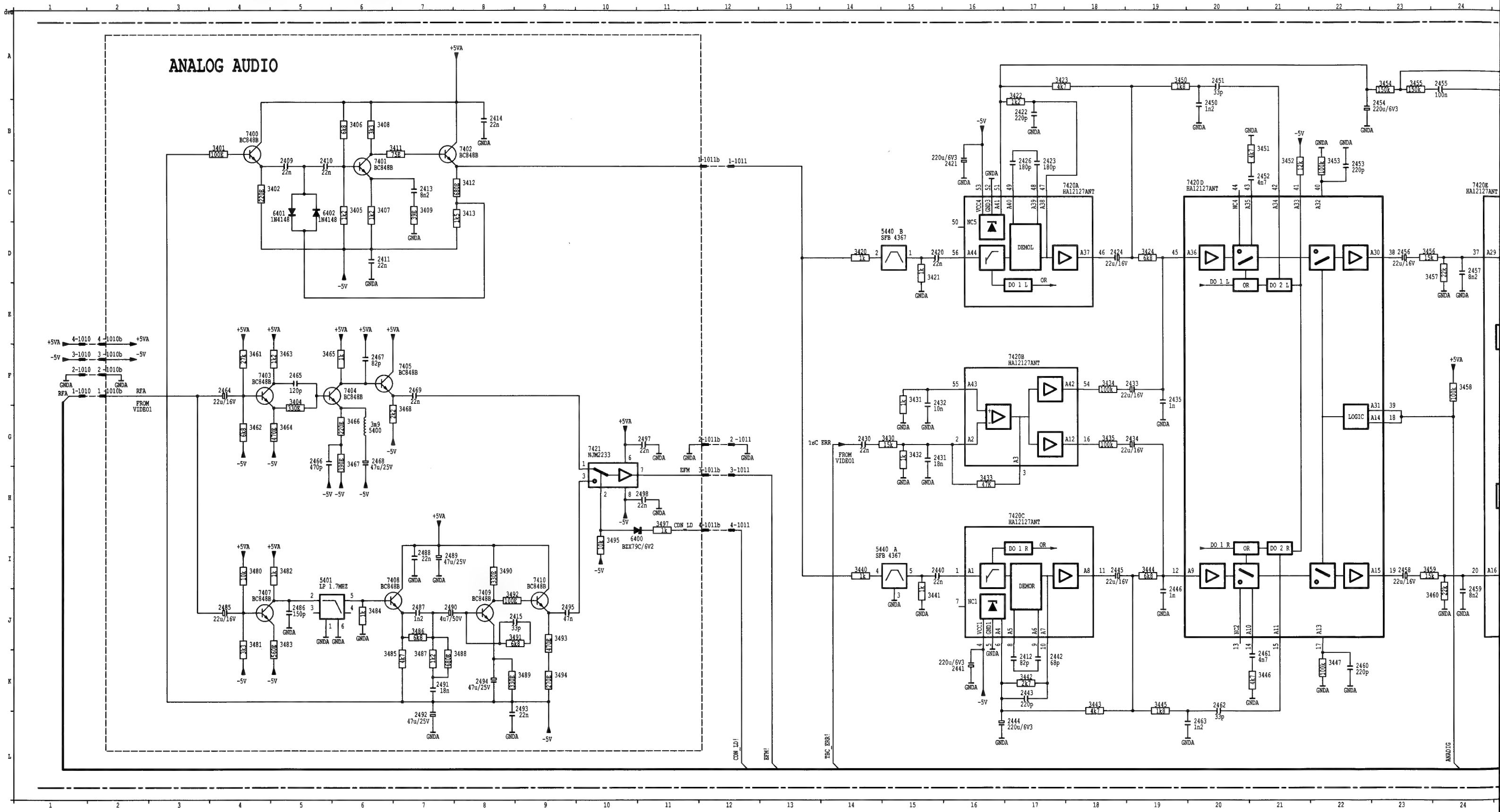


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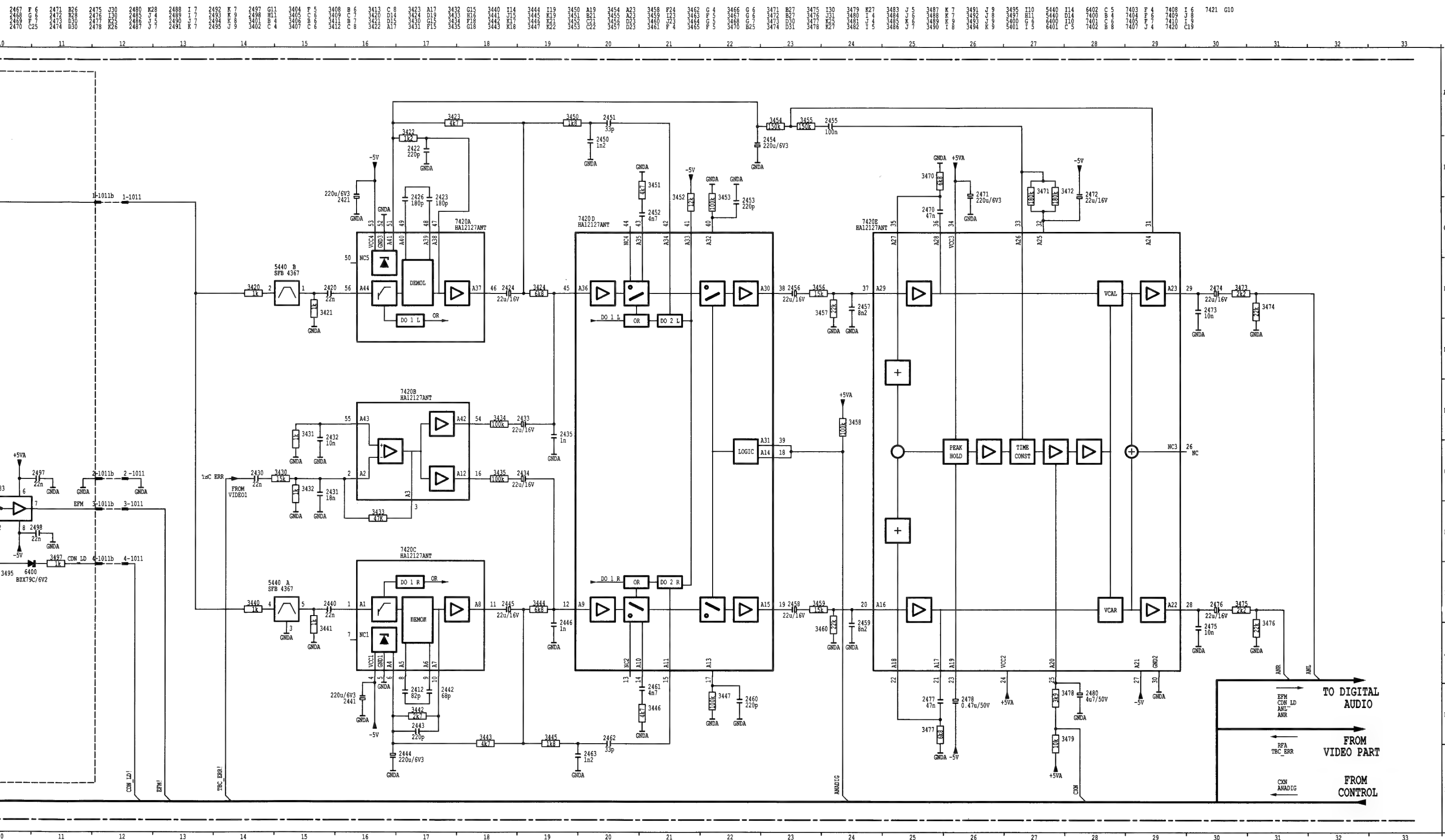


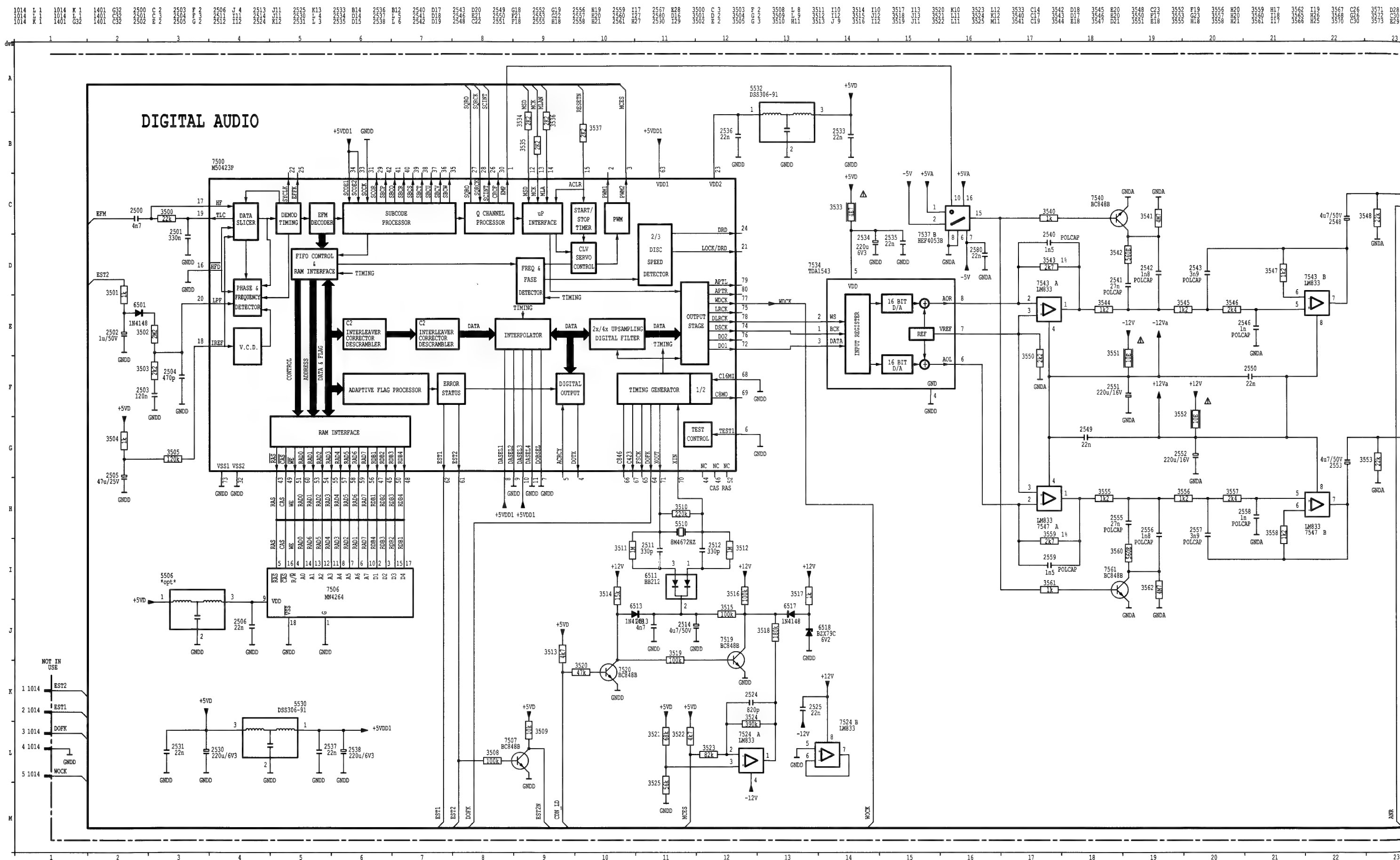


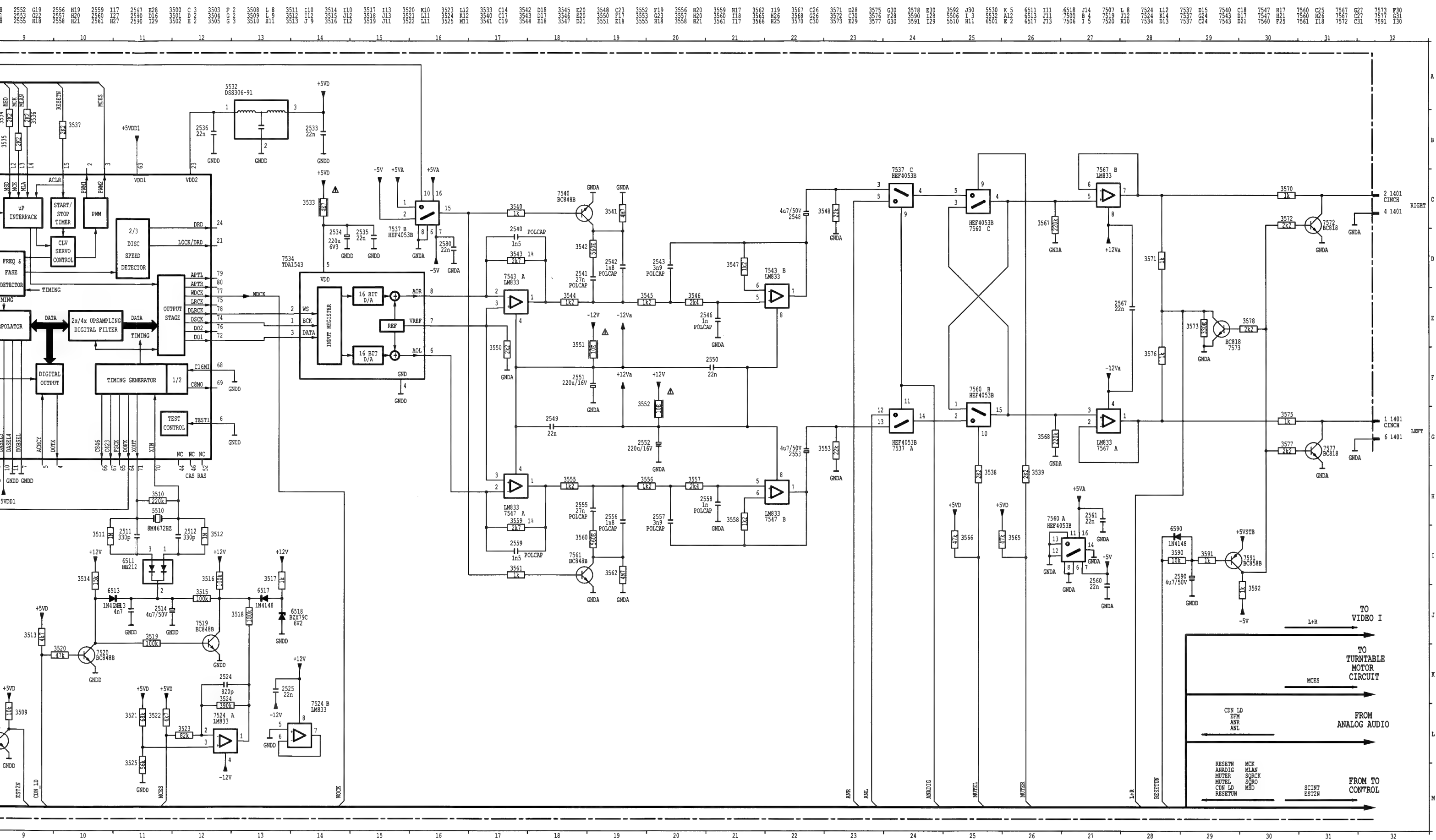
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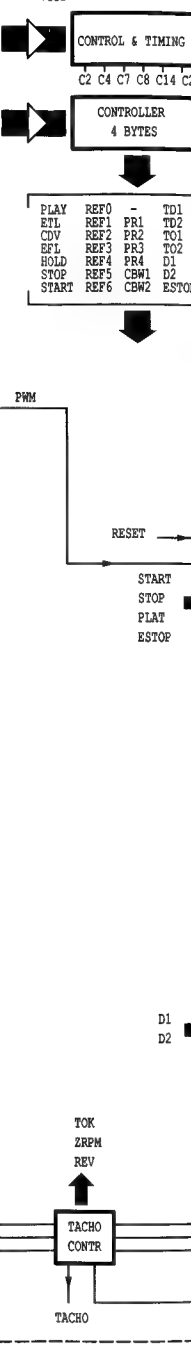
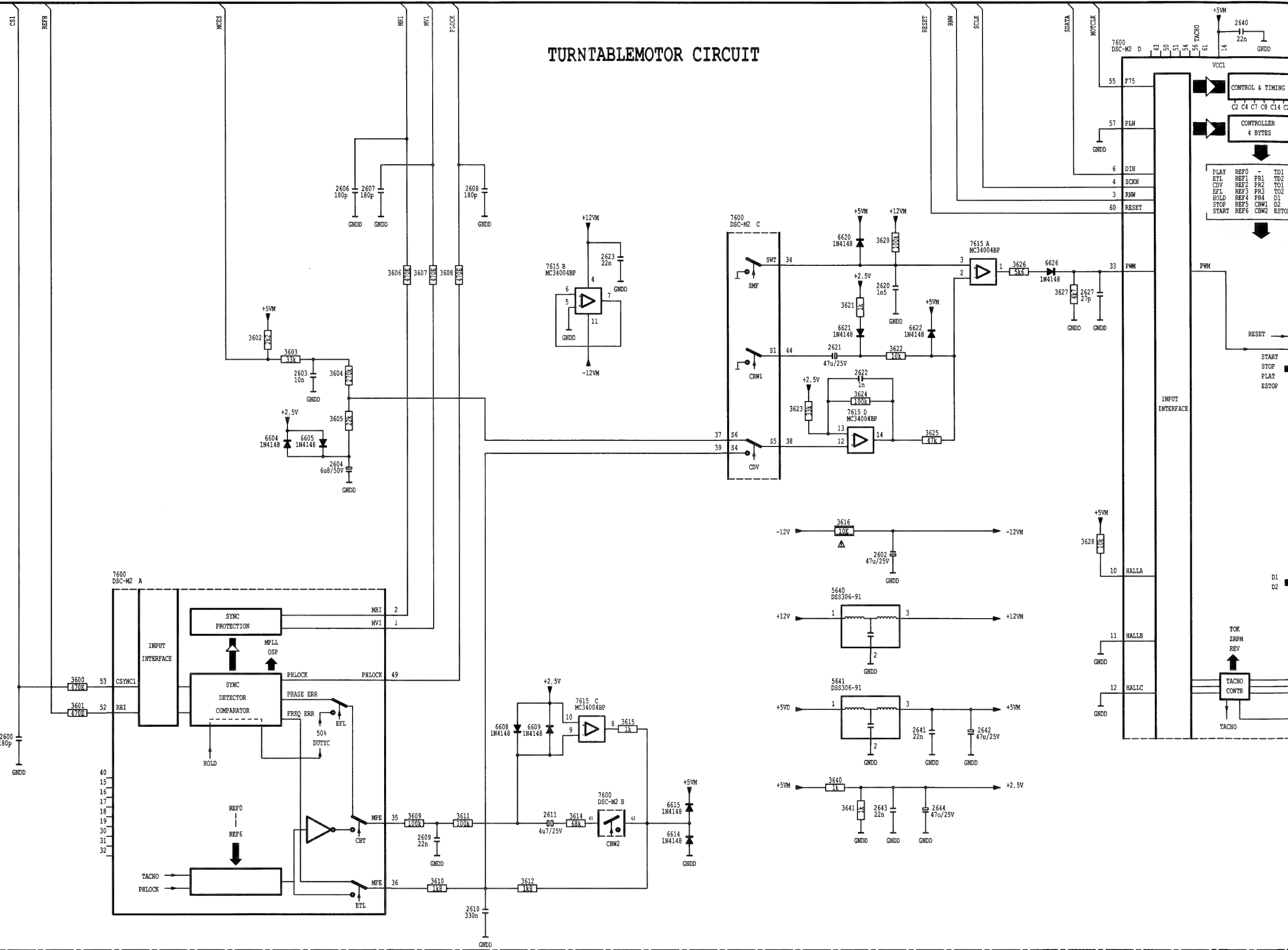
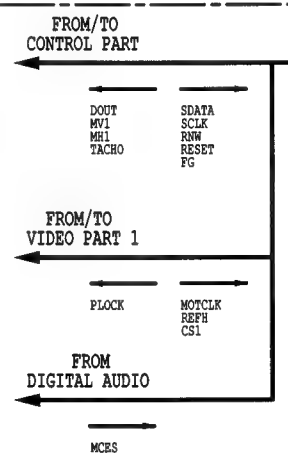




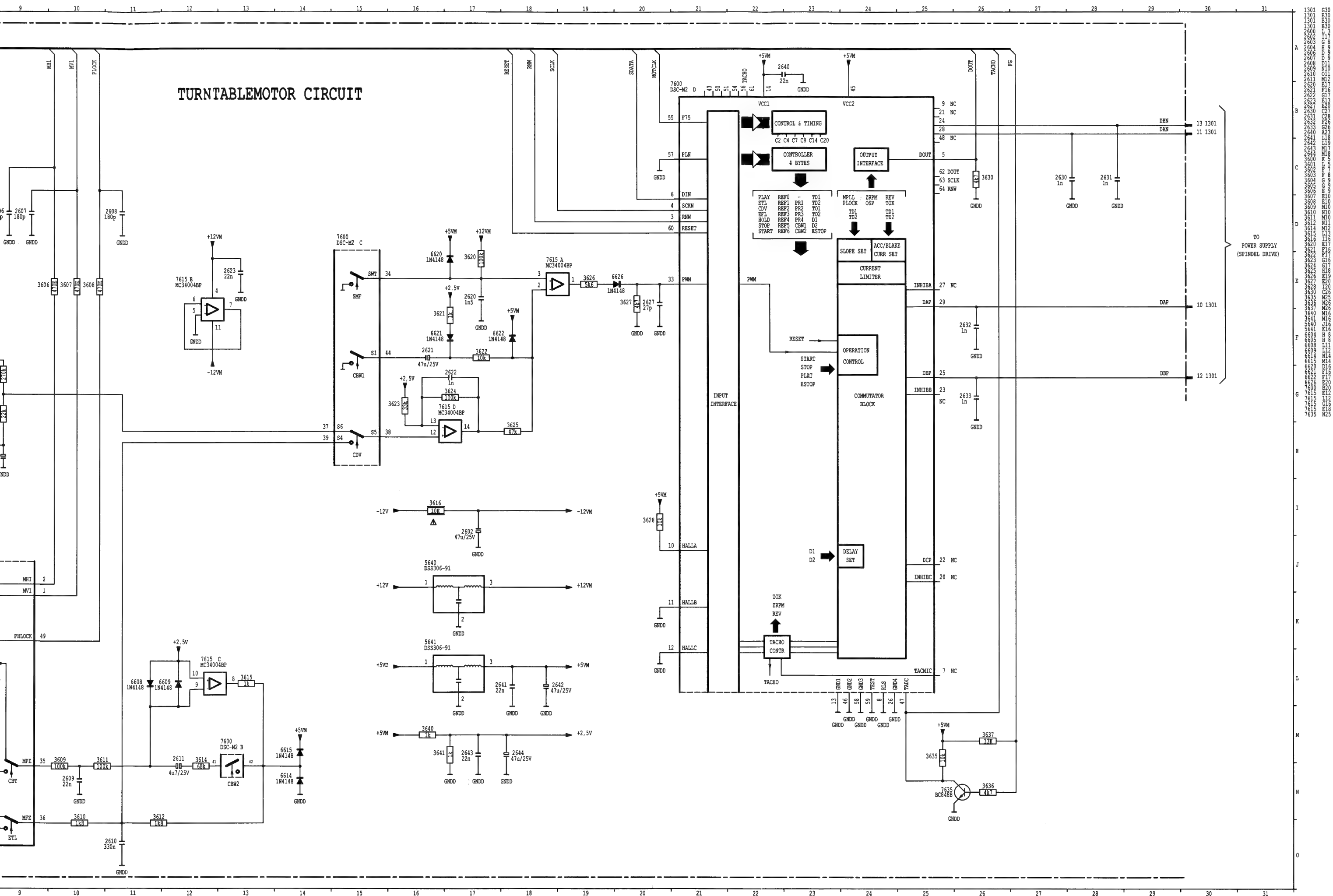


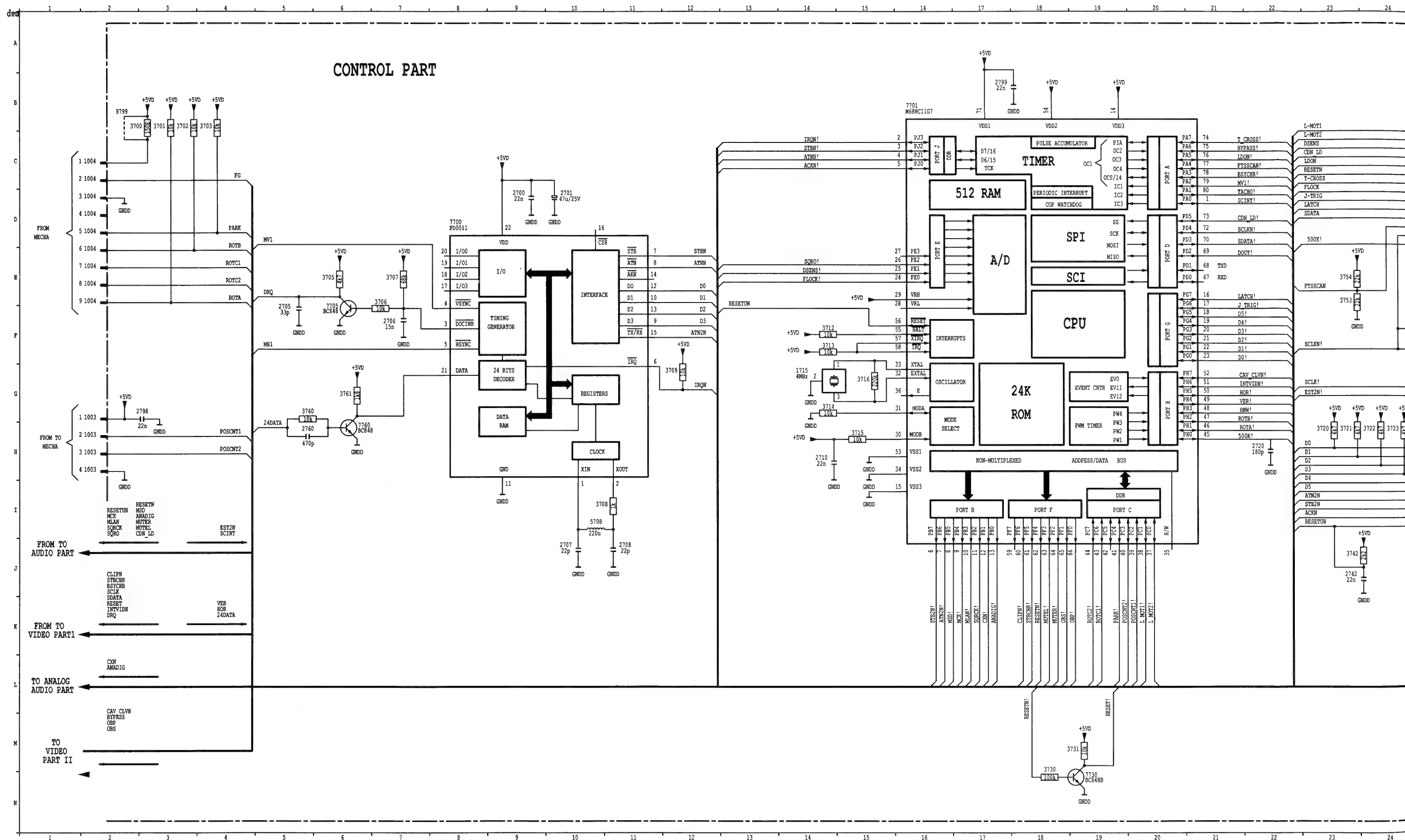


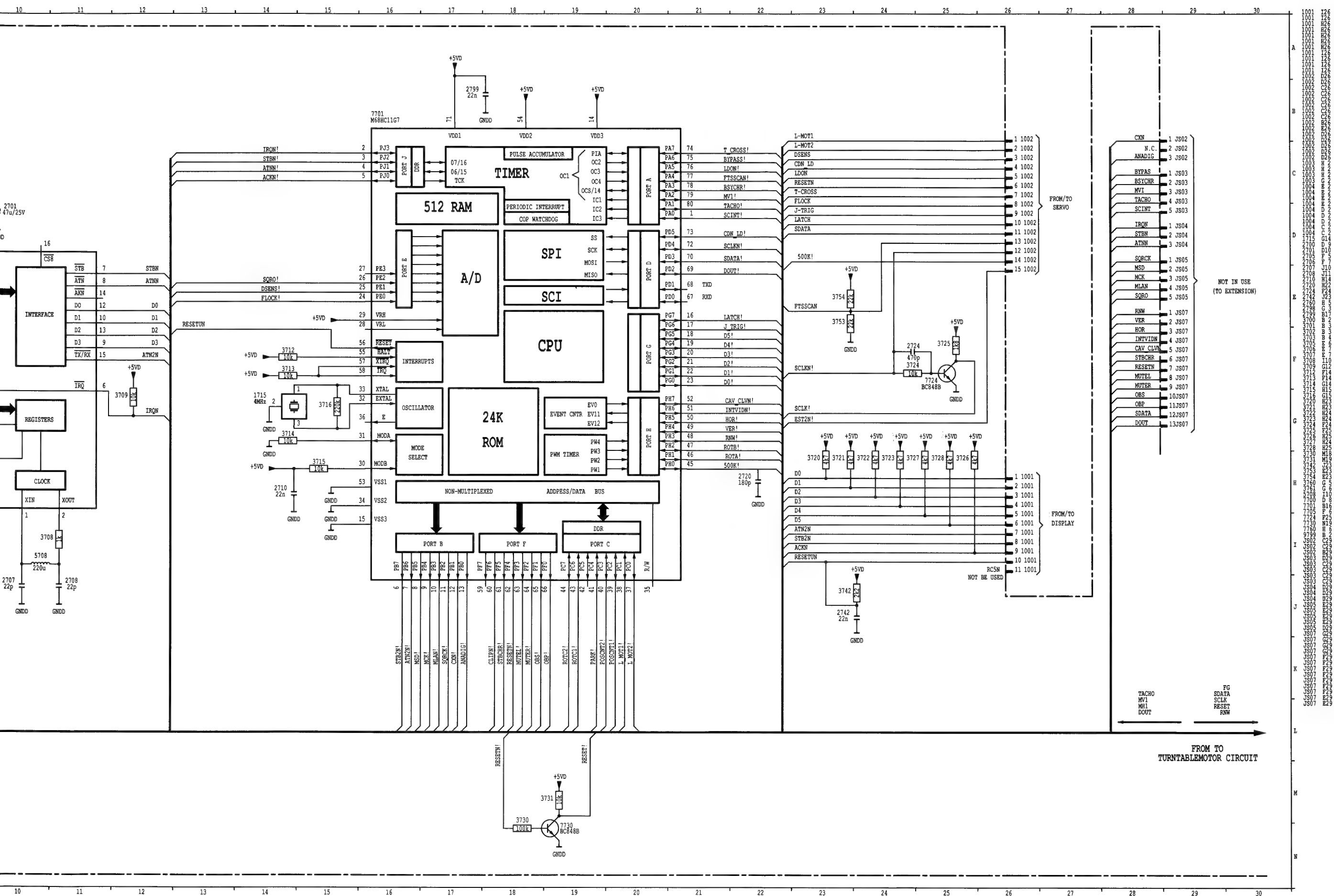
# TURNTABLEMOTOR CIRCUIT



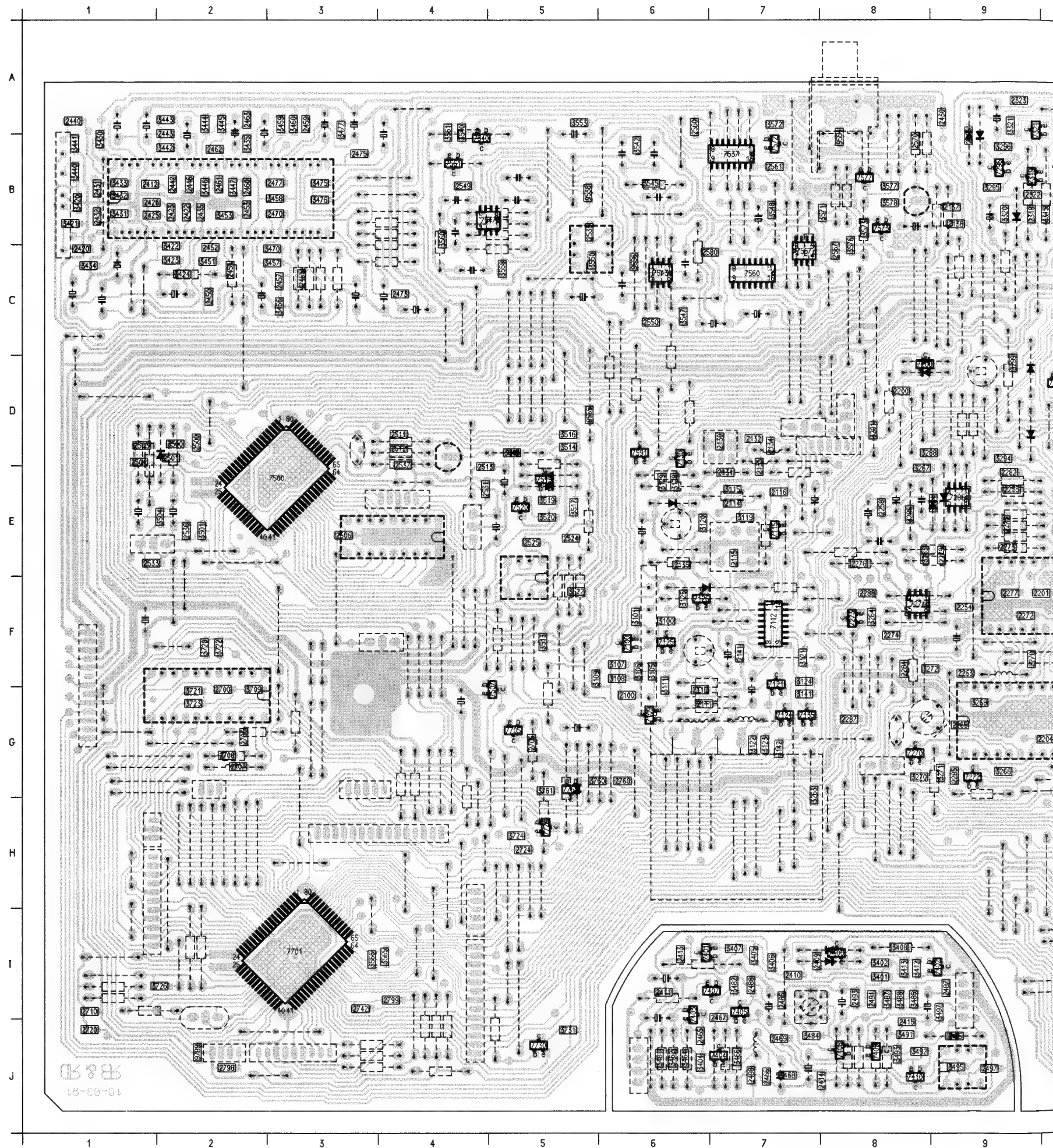
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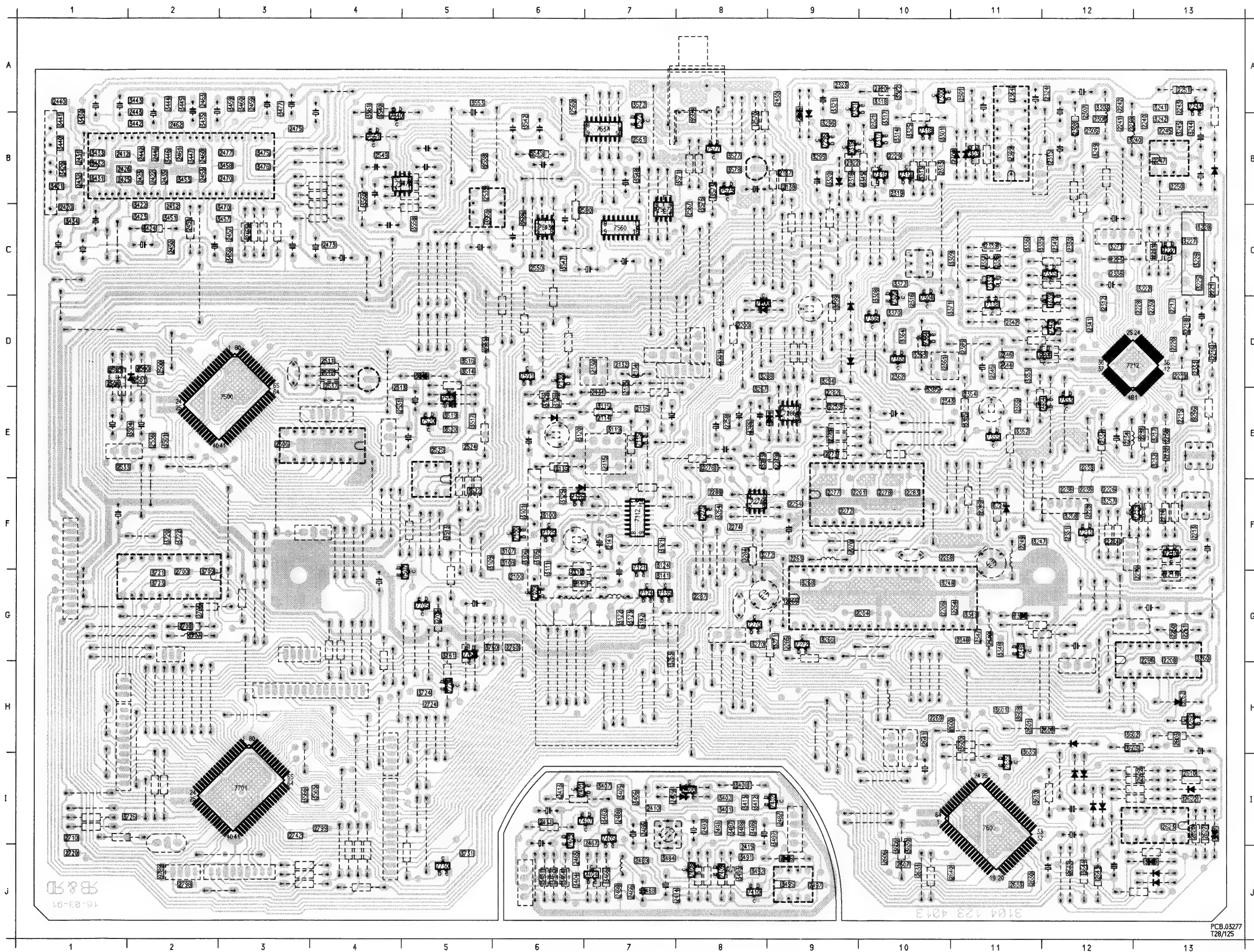










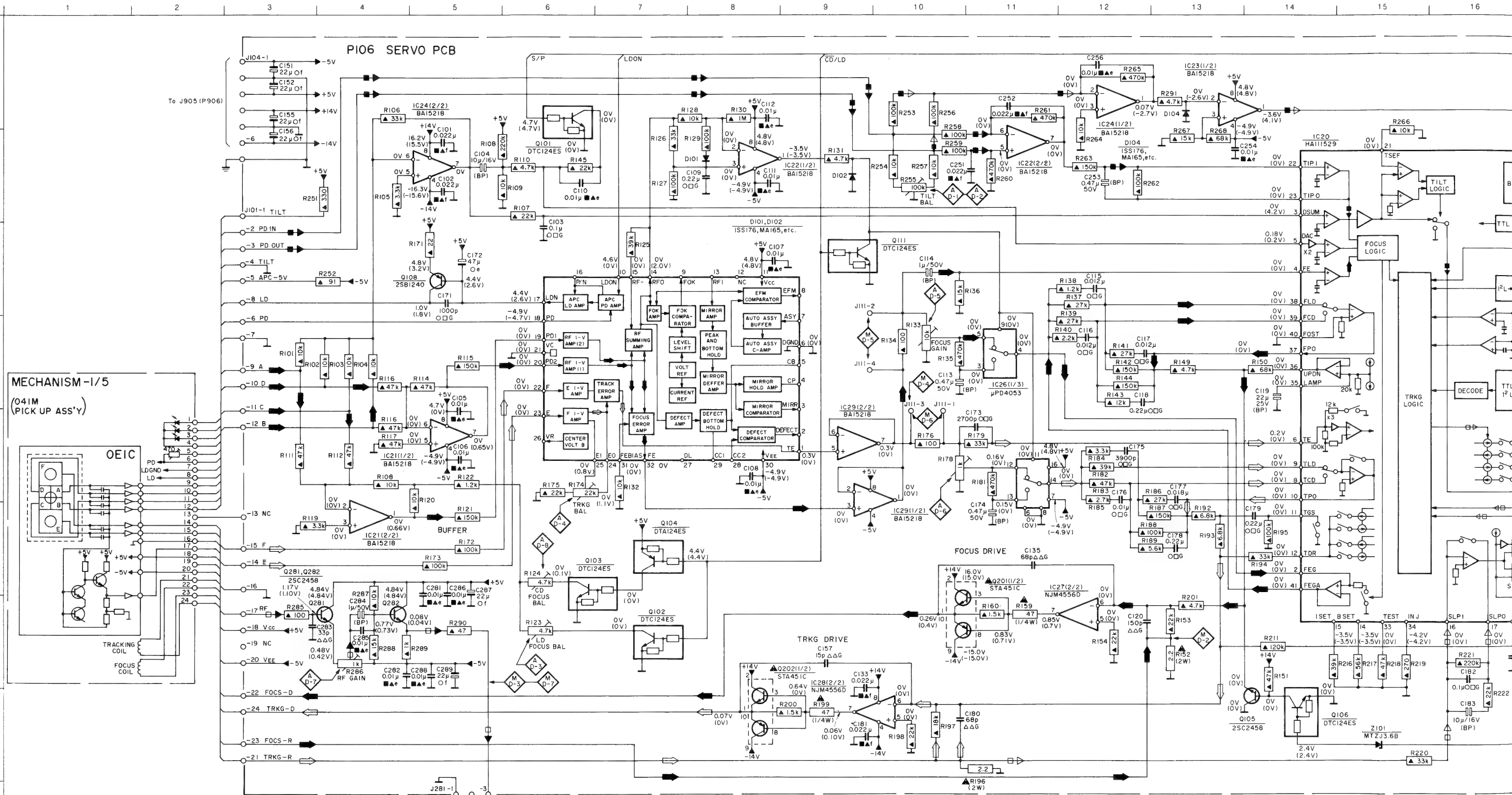


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2115 E7	2440 A1	3295 B9	7125 F6
2116 E7	2442 B2	3296 B9	7126 F6
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2131 E7	2446 B2	3301 B10	7132 F7
2132 D7	2450 C2	3302 A12	7200 D8
2133 E7	2450 C2	3308 D10	7210 F13
2134 D7	2452 C2	3309 C11	7211 F12
2135 E6	2453 B2	3313 B10	7212 D12
2137 B9	2455 C3	3314 B10	7217 C13
2148 B9	2457 F7	3315 B10	7243 A13
2149 F7	2459 A3	3317 B10	7262 H13
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2201 F9	2461 B2	3320 B9	7272 A10
2204 G9	2462 B2	3321 A9	7273 F8
2205 F9	2463 A2	3322 A10	7274 F8
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2210 G13	2466 J7	3335 C12	7289 A9
2211 G13	2467 J7	3336 C11	7300 A10
2213 F13	2469 J7	3348 G11	7303 B11
2214 F13	2470 B5	3349 G11	7304 D10
2215 E13	2471 B5	3352 E14	7305 D10
2216 D13	2475 B3	3353 E11	7306 D10
2217 D13	2477 B3	3355 E11	7317 B10
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2219 D13	2487 I7	3364 D10	7319 B9
2220 D13	2488 I7	3365 D10	7347 D12
2221 D13	2491 I8	3370 D10	7348 G11
2223 C12	2493 I8	3371 D11	7353 E12
2224 F12	2495 J9	3372 C10	7354 E12
2225 F12	2497 J9	3373 E12	7355 E11
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2228 D13	2500 D2	3404 J6	7400 I8
2229 B10	2501 D2	3405 I7	7401 I7
2230 D13	2503 D1	3406 I7	7402 I9
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2237 F12	2515 E5	3422 B1	7410 J8
2238 E13	2517 E5	3423 C2	7500 E3
2239 B13	2533 E1	3424 C2	7507 G5
2240 B13	2535 E5	3430 B1	7519 E5
2241 B12	2536 E5	3431 B1	7520 E5
2242 B12	2537 E5	3432 B1	7537 B7
2243 B13	2549 B4	3433 B1	7540 A4
2245 B13	2550 C6	3434 C1	7543 C6
2247 B13	2560 B6	3435 B2	7547 B4
2248 F11	2561 B7	3440 B1	7567 C7
2249 F11	2562 B7	3441 B1	7572 B7
2250 B13	2570 B8	3442 B2	7573 B8
2251 A13	2580 C6	3443 A2	7574 B8
2254 F9	2600 H11	3444 A2	7600 I11
2255 E9	2601 H11	3445 A2	7635 I11
2256 E9	2602 H11	3446 B2	7701 I3
2258 G13	2606 J10	3447 B2	7705 G5
2261 G13	2607 J10	3451 C2	7724 H5
2263 F9	2608 H12	3453 B2	7730 J5
2264 G11	2609 I13	3456 C3	7760 G5
2265 G11	2610 I13	3457 C3	9296 E13
2266 H10	2620 I13	3458 B3	9538 B5
2269 H10	2622 I13	3459 A3	9539 B5
2270 F9	2623 I13	3460 A3	9554 D8
2272 F9	2627 I13	3462 J6	9555 D8
2273 F9	2628 J6	3463 J6	9586 C6
2274 F8	2630 J10	3464 J6	9789 J2
2275 E9	2632 J12	3468 J7	
2276 E8	2633 J11	3470 C2	
2277 F9	2640 H10	3475 B3	
2278 F10	2641 H10	3476 B3	
2279 E9	2647 J7	3477 B3	
2282 E9	2700 G2	3481 J6	
2283 F10	2705 G5	3482 I7	
2284 F8	2706 G2	3484 J7	
2285 G9	2707 G2	3486 I8	
2286 H13	2708 G2	3487 I8	
2287 G8	2710 I1	3488 I8	
2288 F8	2720 J1	3491 J8	
2296 B9	2724 H5	3492 J8	
2300 B11	2742 I3	3493 J8	
2301 A11	2760 J9	3498 J9	
2305 B12	2788 J2	3497 J9	
2306 B12	2799 I4	3500 D2	
2307 B12	3100 F6	3501 E2	
2308 B12	3101 F6	3504 E2	
2309 B12	3102 F6	3505 E2	
2312 D12	3106 F6	3514 D5	
2313 B10	3107 F6	3515 D5	
2315 B12	3108 F6	3516 D5	
2316 D10	3109 F6	3517 E5	
2319 B10	3111 E6	3518 E5	
2320 A10	3115 E7	3520 E5	
2321 B10	3119 E7	3522 F5	
2322 B9	3121 F7	3542 B6	
2323 A9	3122 F7	3545 B6	
2324 A12	3125 G7	3547 C6	
2330 C12	3124 F7	3548 B7	
2331 D13	3125 F6	3550 C5	
2334 E12	3128 E6	3553 A5	
2335 C12	3129 E6	3558 B3	
2336 C11	3141 G7	3560 C4	
2338 C11	3142 G7	3561 B4	
2339 C11	3201 D8	3565 I4	
2340 C12	3217 E13	3566 I3	
2341 D12	3222 C13	3571 B8	
2342 D11	3224 F11	3572 A7	
2343 E10	3225 C13	3573 B8	
2344 D11	3226 C13	3576 C8	
2345 D11	3227 C13	3577 B8	
2346 D11	3228 C13	3578 B8	
2347 G11	3232 E13	3579 B8	
2348 G11	3240 B12	3601 H11	
2349 G11	3241 A13	3602 H12	
2350 G11	3242 B13	3605 H10	
2351 F12	3244 B13	3606 J10	
2354 E11	3245 E11	3607 F2	
2355 E11	3247 F11	3610 I11	
2361 D10	3248 G10	3620 J13	
2362 D10	3249 B12	3627 I13	
2363 D11	3257 F12	3630 J10	
2364 A11	3258 G10	3631 I11	
2409 I8	3260 G13	3641 J12	
2410 I7	3262 H13	3709 G2	
2411 I6	3263 H7	3720 F2	
2412 B1	3264 F8	3721 G2	
2413 B1	3265 F8	3722 F2	
2414 J8	3269 G8	3723 G2	
2415 J8	3269 G8	3724 H5	
2420 C1	3270 G8	3726 I1	
2422 B2	3271 G8	3731 J5	
2423 B2	3272 F8	3732 G5	
2425 B1	3273 F8	3761 G5	
2426 B1	3283 E8	7100 F8	

PCB.03277  
T28/125

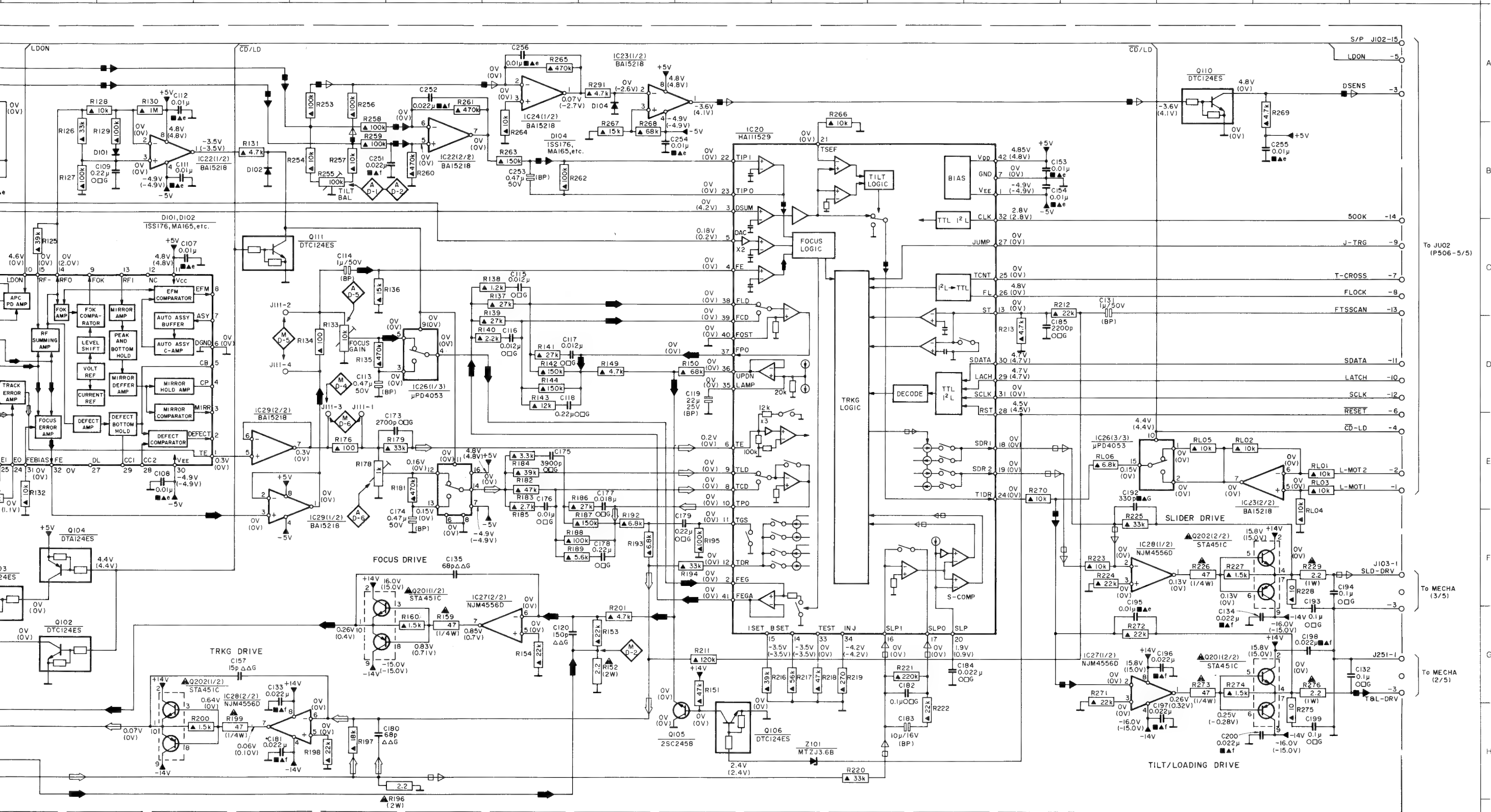
J. P106 SERVO/MECHANISM PICK-UP ASS'Y SCHEMATIC DIAGRAMS

C101 A5	C109 B7	C116 D12	C133 G9	C156 A3	C174 F11	C182 G16	C195 F18	C253 B12	C284 G4	D102 B9	I C22 B9	I C27 F11	Q102 G7	Q111 C10	Q282 G4	R107 B6	R114 D5	R121 F5	R128 A7	R135 D10	R142 D12	R152 G13	R173 F5	R183 E12	R192 F13	R198 H10	R216 G14	R22
C102 B5	C110 B6	C117 D12	C134 G19	C157 G8	C176 E12	C183 H16	C196 G18	C254 B13	C285 G4	D104 A13	I C23 A13	I C27 G18	Q103 F6	Q112 F11	Q283 G4	R108 B5	R115 D5	R122 E5	R129 B7	R136 C10	R143 D12	R153 G13	R174 E6	R184 E12	R193 F13	R199 H9	R217 G15	R22
C104 B5	C111 B8	C118 D12	C135 F11	C158 G18	C177 E13	C184 G16	C197 H18	C255 B20	C286 F5	D106 A13	I C24 E19	I C28 F18	Q104 F7	Q113 F11	Q284 G4	R109 E4	R116 D4	R123 E6	R130 A8	R137 C12	R144 D12	R154 G12	R175 E6	R185 F12	R194 F13	R200 H8	R218 G15	R22
C105 D5	C112 A8	C119 D14	C151 A3	C171 C5	C178 F13	C185 D17	C198 G20	C256 A12	C287 F5	D120 B14	I C24 A12	I C28 G9	Q105 H13	Q114 F11	Q285 F19	R110 B6	R117 E4	R124 F6	R131 B9	R138 C12	R145 B6	R155 G11	R176 E10	R186 E12	R195 F14	R201 G13	R219 G15	R22
C106 E5	C113 D10	C120 G12	C153 A3	C172 C5	C179 F13	C192 E18	C199 H20	C257 F5	C288 G5	D121 E4	I C24 A5	I C29 D9	Q106 H14	Q115 F11	Q286 G8	R111 E3	R118 E4	R125 C7	R132 E7	R139 C12	R146 D13	R156 G11	R177 E11	R187 F12	R196 F14	R202 H10	R220 H15	R22
C107 C8	C114 C10	C131 C18	C154 B17	C173 D10	C180 H10	C193 F20	C200 H19	C258 G4	C289 G5	D122 E4	I C26 D11	I C29 F10	Q108 C4	Q116 F11	Q287 G3	R112 E4	R119 E4	R126 B7	R133 D10	R140 D11	R147 D14	R157 G11	R178 E11	R188 F12	R197 H10	R203 G13	R221 G16	R22
C108 E8	C115 C12	C132 G20	C154 B17	C173 E12	C181 H9	C194 F20	C252 A11	C283 G4	C290 G5	D122 B11	I C26 E18	Q101 B6	Q110 A19	Q281 G3	R106 A4	R112 E4	R120 E5	R127 B7	R134 D10	R141 D12	R148 G14	R158 F12	R179 E12	R189 F12	R198 H10	R204 G13	R222 H16	R22





C22 B9	IC27 F11	Q102 G7	Q111 C10	Q282 G4	R107 B6	R114 D5	R121 F5	R128 B7	R135 D10	R142 D12	R152 G13	R173 F5	R183 E12	R192 F13	R198 H10	R216 G14	R223 F18	R251 B3	R258 A10	R264 B12	R272 G18	R287 F4	RL03 E20
C23 A13	IC27 G18	Q103 F6	Q201 F11	R101 D3	R108 B5	R115 D5	R122 E5	R129 B7	R136 C10	R143 D12	R153 G13	R174 E6	R184 E12	R193 F13	R200 H9	R217 G15	R224 F18	R252 C4	R259 B10	R265 A15	R273 G19	R288 G4	RL04 E20
C24 E19	IC28 F18	Q104 F7	Q202 G19	R102 D3	R109 B6	R116 F3	R123 G6	R130 A8	R137 C12	R144 D12	R154 G12	R175 E6	R185 F12	R194 F13	R201 H3	R218 G15	R225 F18	R253 A10	R260 B11	R267 A13	R274 G19	R289 G5	RL05 E19
C24 A12	IC28 G9	Q105 H13	Q203 F19	R103 D4	R110 B6	R117 D4	R124 F6	R131 B9	R138 C12	R145 B6	R155 G11	R176 E10	R186 F12	R195 F14	R202 G13	R219 G15	R226 F19	R254 B9	R261 A11	R268 A13	R275 H20	R290 G5	RL06 E18
C24 A5	IC29 D9	Q106 H14	Q204 G8	R104 D4	R111 B6	R118 E4	R125 C7	R132 E7	R139 C12	R146 D13	R156 G11	R177 E11	R187 F12	R196 F14	R203 H3	R220 H15	R227 F19	R255 B10	R262 B12	R269 A20	R276 G20	R291 A13	
C26 D11	IC29 F10	Q108 B4	Q251 B10	R105 B4	R112 E4	R119 E4	R126 B7	R133 D10	R140 D11	R147 D13	R157 C5	R178 E11	R188 F12	R197 H10	R204 G14	R221 G16	R228 F20	R256 A10	R263 B12	R270 E17	R277 G18	R285 G3	RL01 E20
C26 E18	Q101 B6	Q110 A19	Q281 G3	R106 A4	R113 E4	R120 E5	R127 B7	R134 D10	R141 D12	R148 G14	R158 F5	R182 E12	R189 F12	R197 H10	R205 D17	R222 H16	R229 F20	R257 B10	R264 B12	R271 G18	R286 G4	RL02 E19	Z101 H15

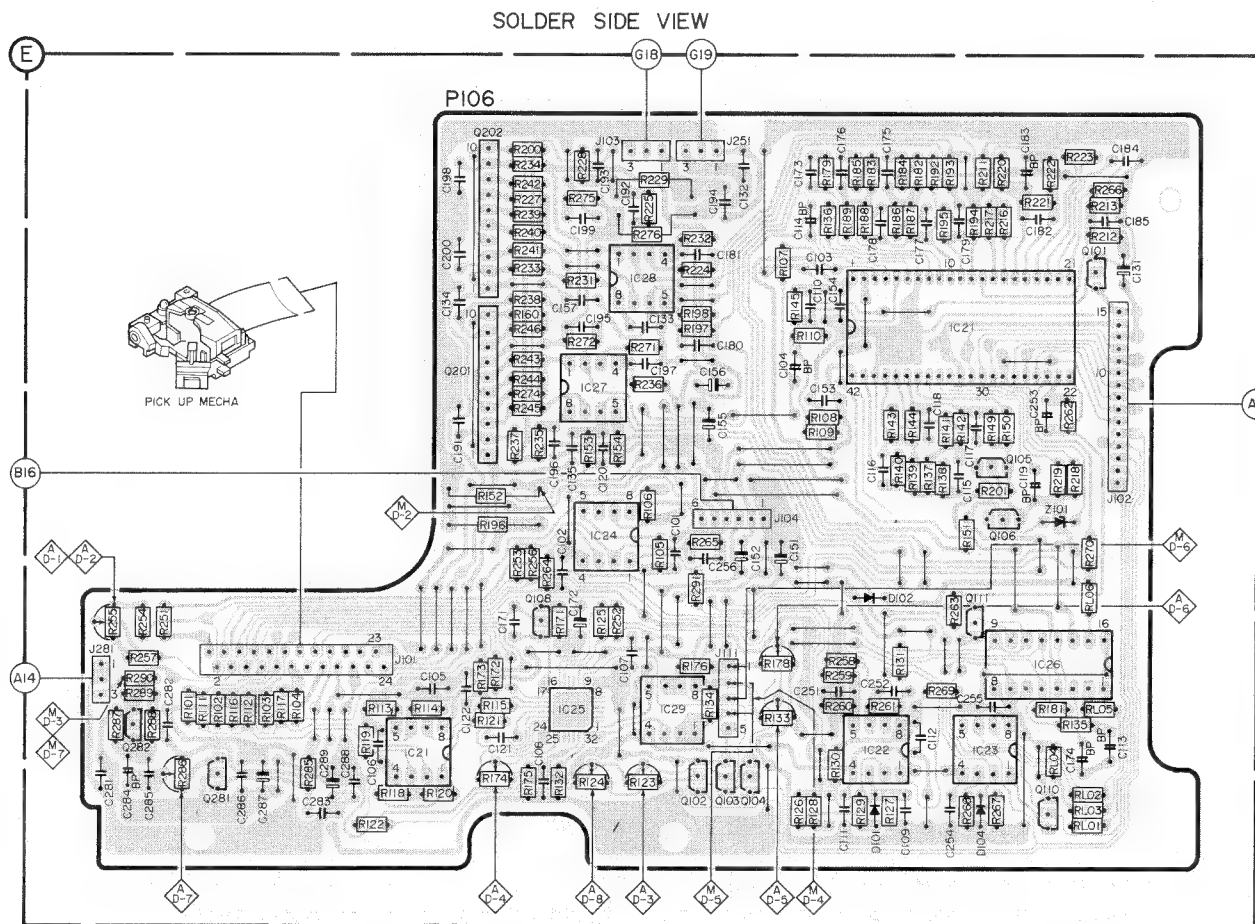


VOLTAGE : MEASURE USING 15000 TRACK  
OF TEST DISC "IMS 1.0"

STOP  
( ) : STILL

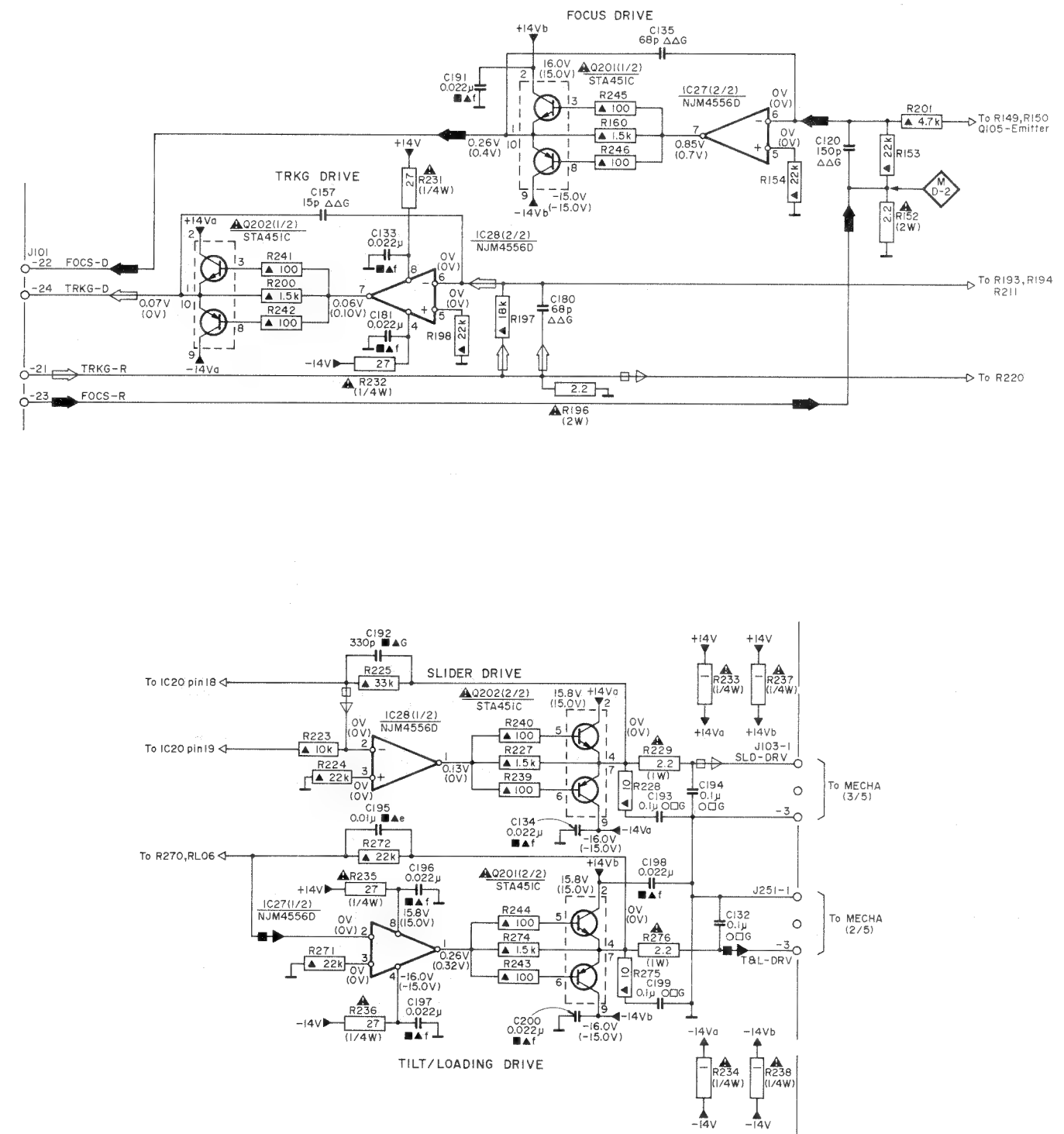
- ➡ FOCUS SERVO CONTROL SIGNAL
  - ➡ TRACKING SERVO CONTROL SIGNAL
  - ➡ SLIDER SERVO CONTROL SIGNAL
  - ➡ TILT SERVO CONTROL SIGNAL
  - ➡ DISC SENSOR SIGNAL
  - ➡ RF SIGNAL
- ⬢ = ADJUSTMENT
- ⬢ = MEASURE POINT

R	R200 R233~R235 R275 R228 R229 R225 R276 R232 R224 R179 R182~R189 R192~R195 R211 R220~R223 R266 R213																												R
	R227 R237~R246 R231 R272 R271 R236 R198 R197 R107~R110 R145 R136~R144 R217 R216 R219 R262 R218 R212																												
	R255 R257 R254 R251 R101~R104 R285														R113~R115 R152~R154 R160 R274 R106 R105 R291 R265 R176 R134 R178 R258~R261 R201 R149~R151 R181 R270														
	R287~R290 R286 R111 R116 R112 R117														R118~R122 R196 R171~R175 R253 R256 R264 R132 R23~R25 R252 R133 R126~R130 R263 R267~R269 R135 R101~R106														
C	C198 C134 C157 C199 C192~C197 C181 C180 C132 C173 C110 C103 C175~C179 C182~C185 C131																												C
	C282 C289 C288 C106 C200 C191 C135 C120 C133 C156 C155 C104 C114 C153 C154 C115~C119 C253																												
Q-IC	Q281 C284 C285 C286 C287 C283 C105 C122 C121 C171 C102 C108 C172 C107 C101 C256 C152 C151 C251 C111 C252 C109 C112 C254 C255 C174 C113																												Q-IC
	Q282 Q281 Q202 IC27 IC28 Q101 Q106 Q105 IC26 Q101 Q111 IC23 Q110 IC21 Q201 IC108 IC25 IC24 IC29 Q102~Q104 IC22																												
D-Z	D101 D102 D104 Z101																												D-Z



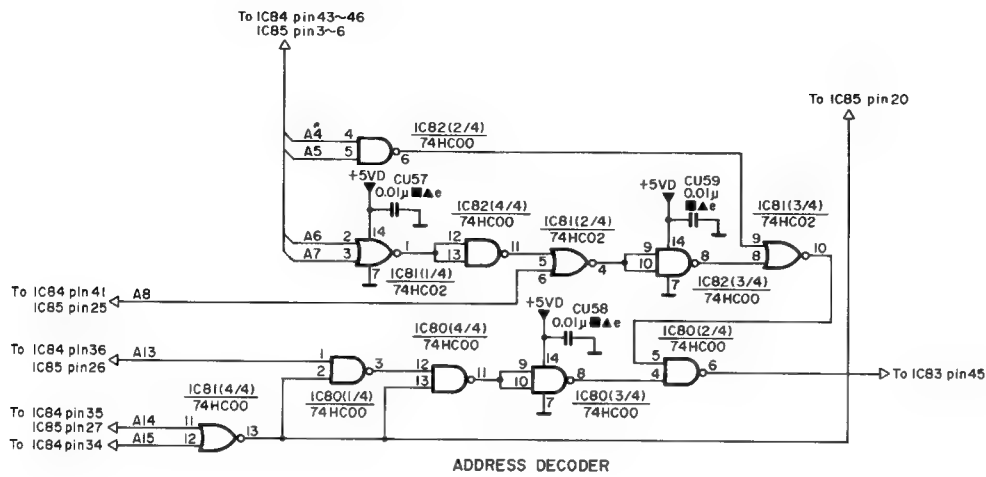
## PI06 SERVO SCHEMATIC DIAGRAM

### MODIFIED CIRCUIT

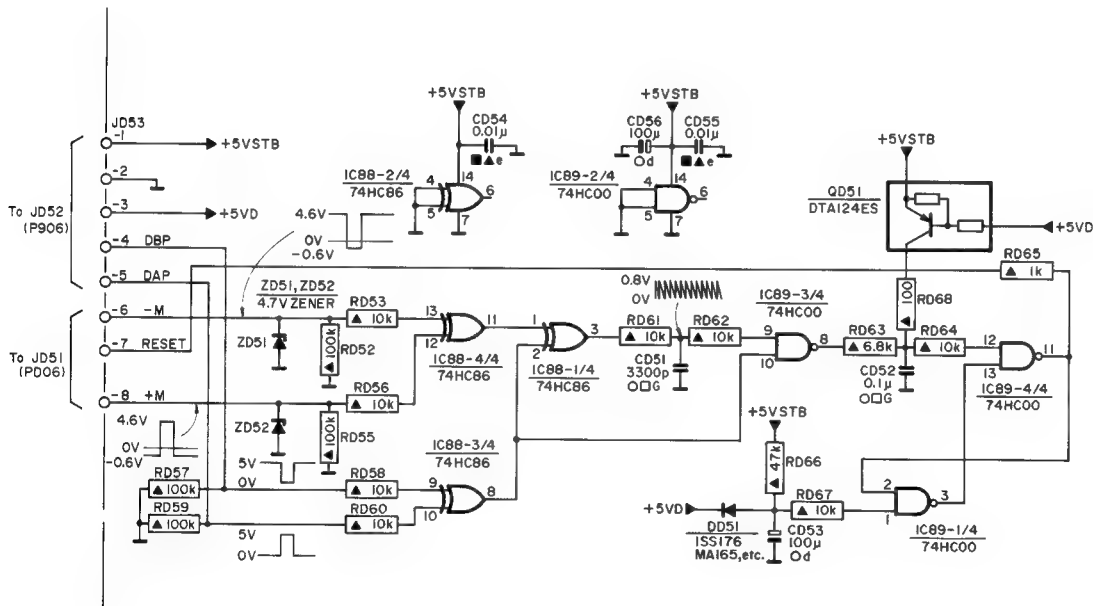


# PU06 OTP $\mu$ -COM SCHEMATIC DIAGRAM

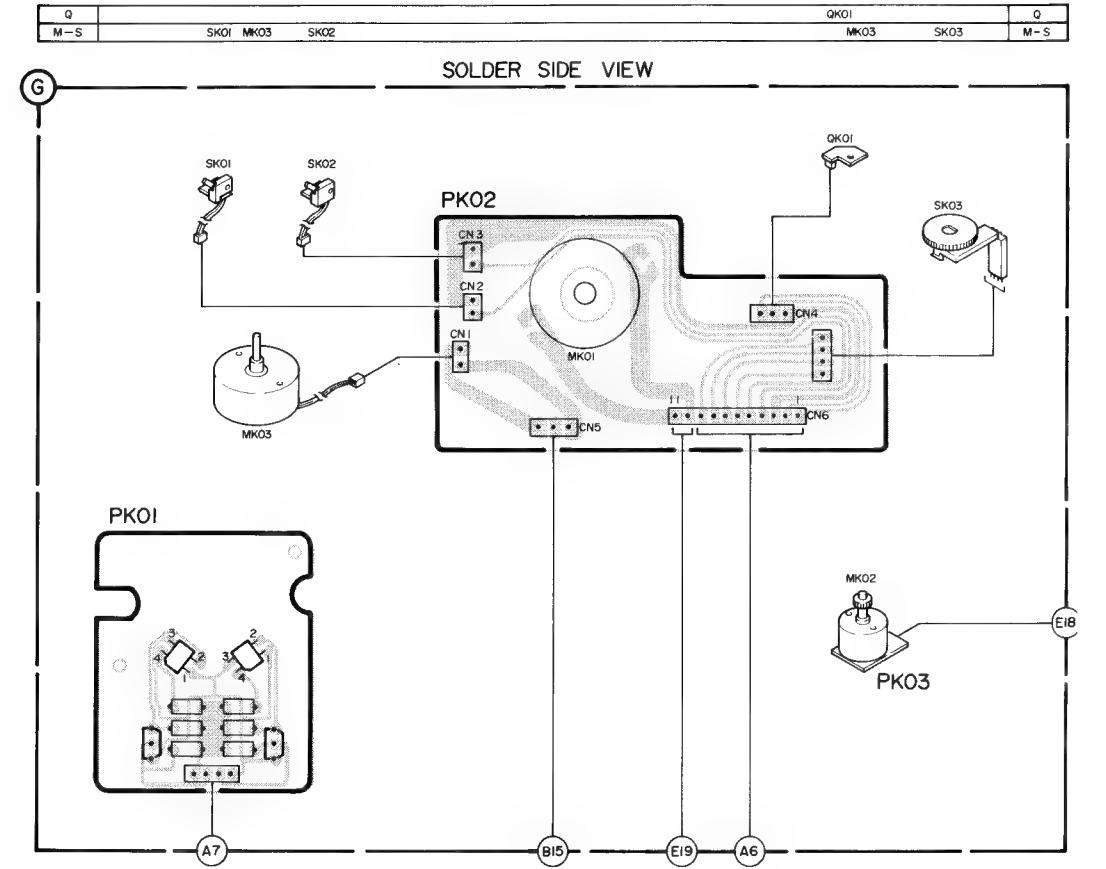
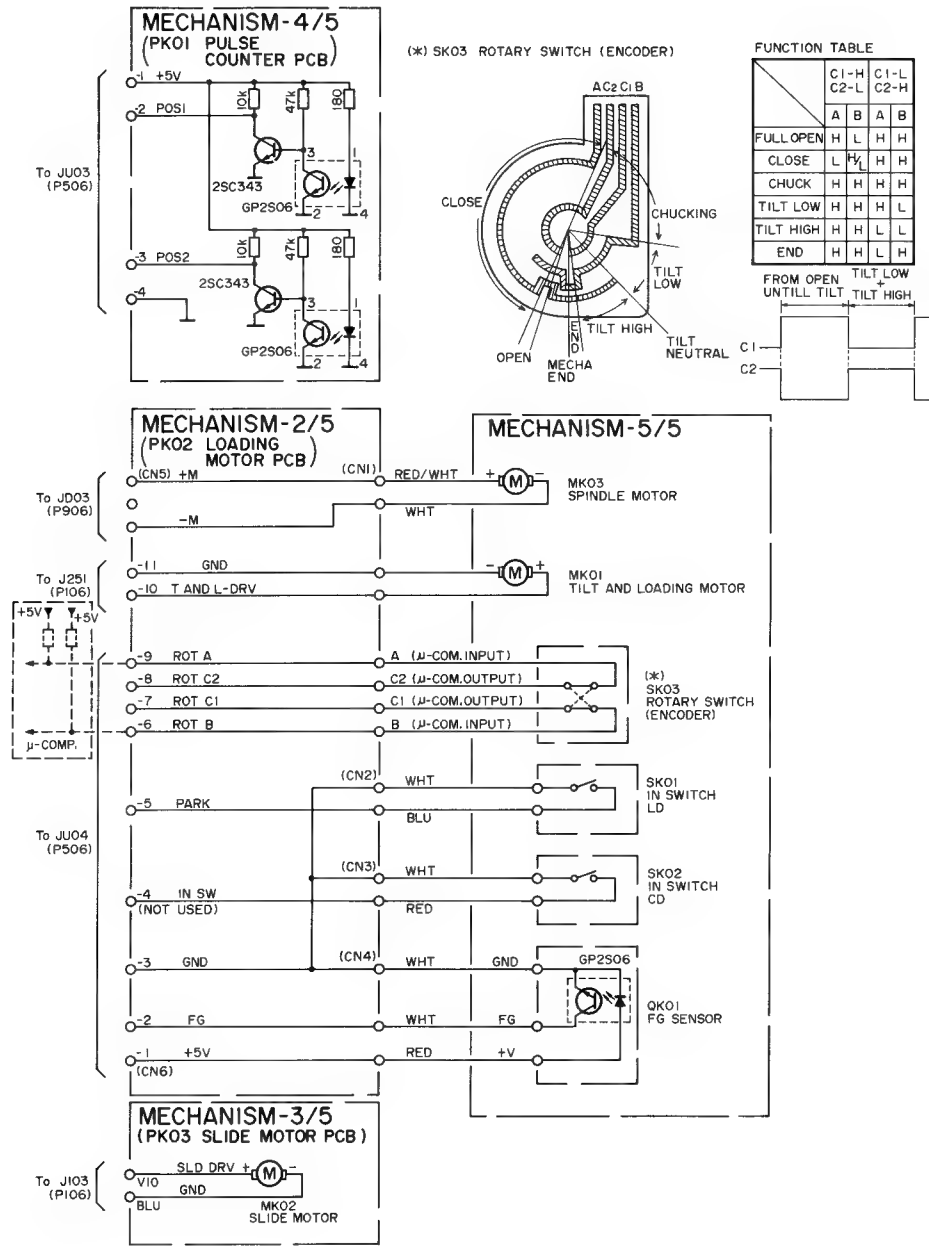
## MODIFIED CIRCUIT



## ADDITIONAL CIRCUIT

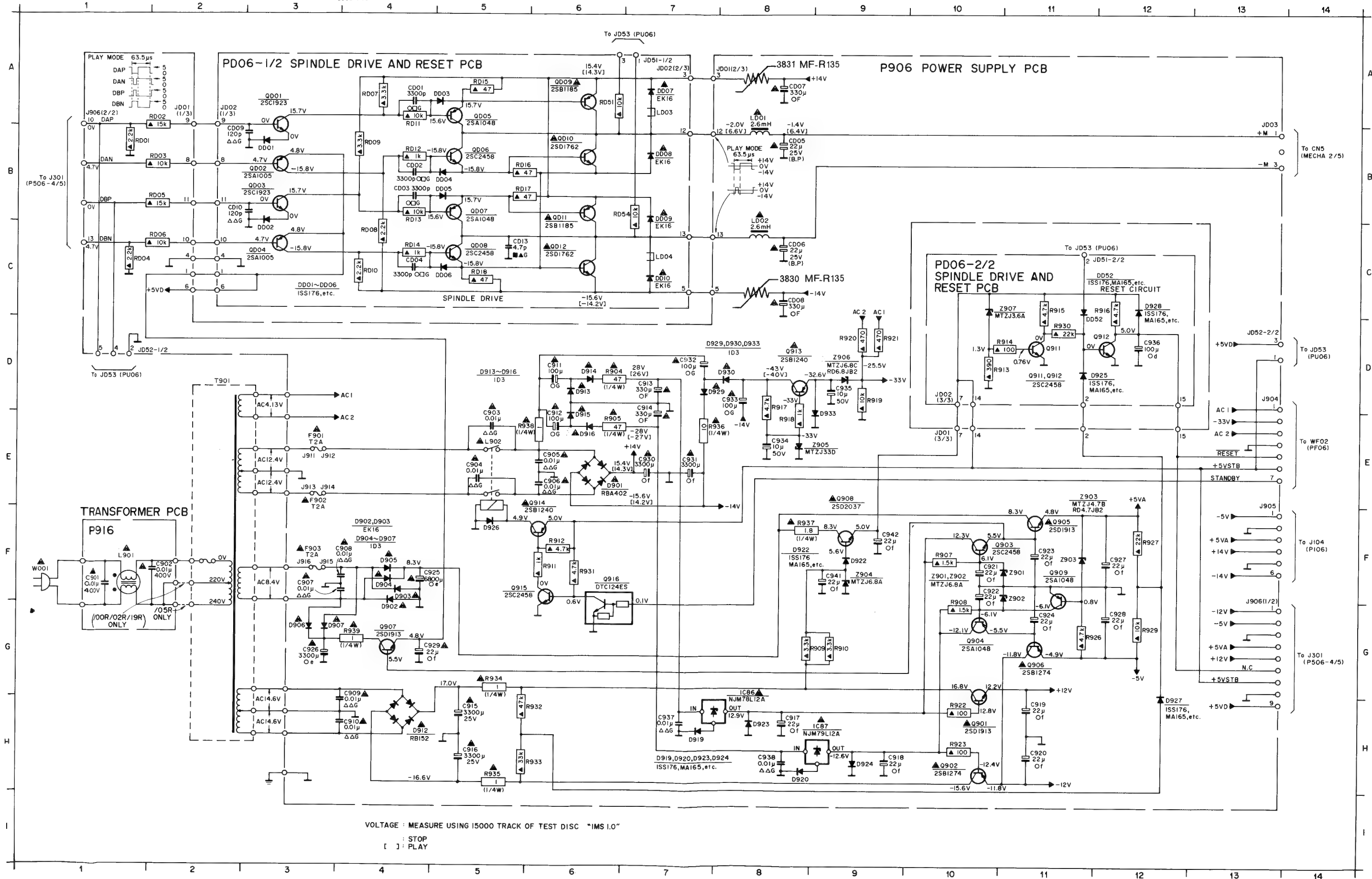


## L. MECHANISM SCHEMATIC DIAGRAMS & PCBs



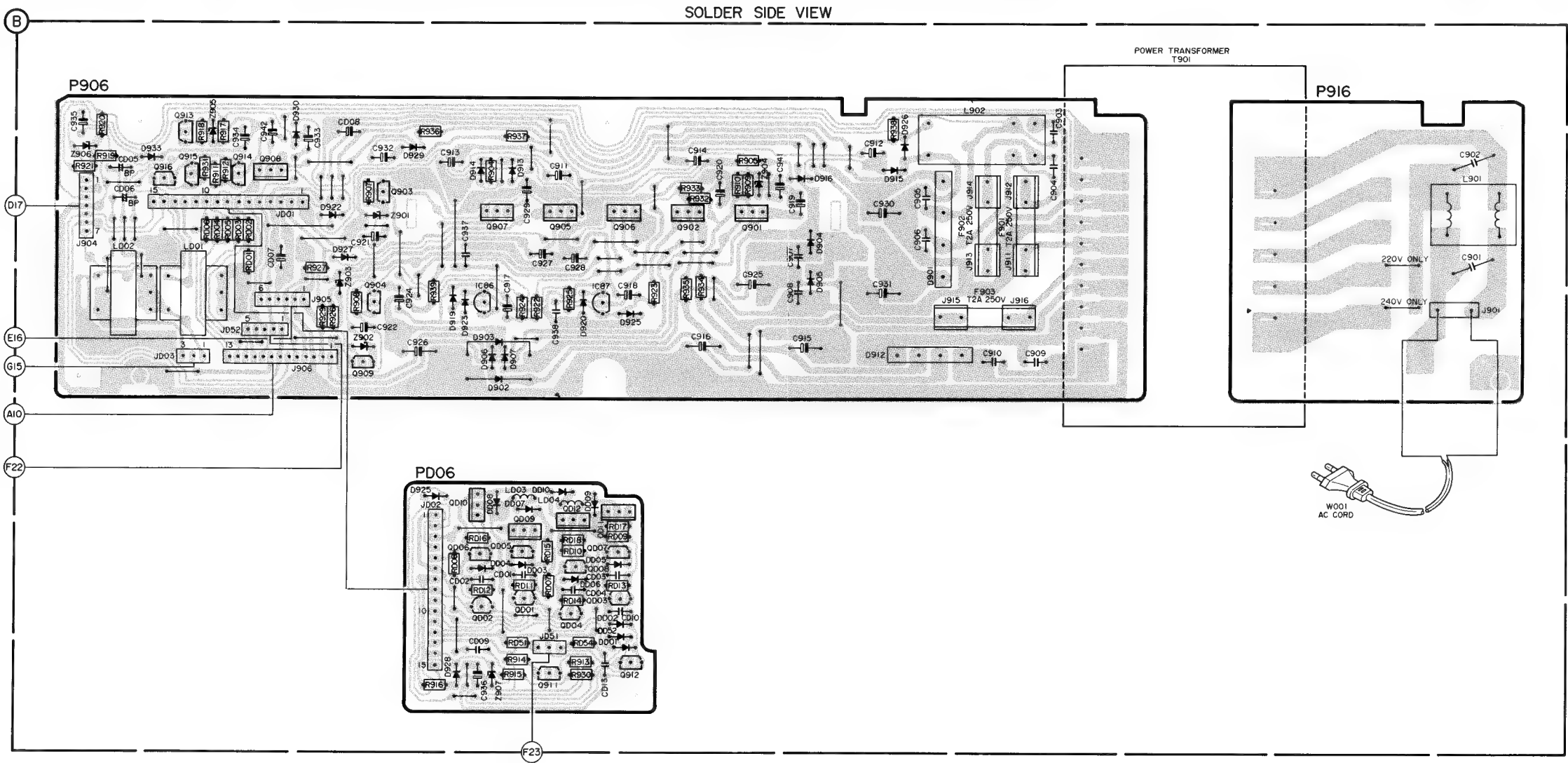
# P906 POWER SUPPLY/P916 TRANSFORMER/PD06 SPINDLE DRIVE SCHEMATIC DIAGRAMS

C901 F1	C912 E6	C923 F11	C934 E8	CD05 B8	D905 F4	D923 H8	DD03 A5	F903 F3	Q904 G10	Q916 F8	QD11 B6	R914 D11	R927 F12	R939 G4	RD11 A4	T901 D2
C902 F2	C913 D7	C924 G11	C935 D9	CD06 C8	D906 G3	D924 H9	DD04 B5	IC86 G8	Q905 F11	QD01 A3	QD12 C6	R915 C11	R928 G12	RD01 B1	RD12 B4	W001 F1
C903 E5	C914 D7	C925 F4	C936 D12	CD07 A8	D907 G3	D925 D11	DD05 B5	IC87 H9	Q906 G11	QD02 B3	QD13 C6	R916 C12	R929 G12	RD02 B1	RD13 B4	Z901 F11
C904 E5	C915 H5	C926 G3	C937 H7	CD08 C8	D912 H4	D926 F5	DD06 C5	L901 F1	Q907 G4	QD03 B3	QD14 C6	R917 D8	R930 G12	RD03 B2	RD14 C4	Z902 F11
C905 E6	C916 H5	C927 F12	C938 H8	CD09 B2	D913 D6	D927 G12	DD07 A7	L902 E5	Q908 E9	QD04 C3	QD15 C6	R918 E9	R931 H6	RD04 C1	RD15 A5	Z903 F11
C906 E6	C917 H8	C928 G12	C941 F9	CD10 B2	D914 D6	D928 C12	DD08 B7	L903 E5	Q909 F11	QD05 A5	QD16 C6	R919 D9	R932 H6	RD05 B2	RD16 B5	Z904 F9
C907 F3	C918 H9	C929 G4	C942 F9	CD11 C5	D915 D6	D929 D7	DD09 B7	L904 E5	Q910 G9	QD06 B5	QD17 C6	R920 D9	R933 H6	RD06 C2	RD17 B5	Z905 F9
C908 F4	C919 H11	C930 E7	CD01 A4	D901 E6	D916 E6	D930 D8	DD10 C7	L905 E5	Q911 D11	QD07 B5	QD18 C6	R921 D9	R934 G5	RD07 A4	RD18 C5	Z906 D9
C909 H4	C920 H11	C931 E7	CD02 B4	D902 G4	D917 H7	D931 D9	DD11 C7	L906 E5	Q912 D12	QD08 C5	QD19 C6	R922 H10	R935 E7	RD08 C4	RD19 C5	Z907 C10
C910 H4	C921 F10	C932 D7	CD03 B4	D903 F4	D918 H7	D932 D9	DD12 C7	L907 E5	Q913 D8	QD09 A6	QD20 C6	R923 H10	R936 E7	RD09 B4	RD20 C4	
C911 D6	C922 F10	C933 D8	CD04 C4	D904 C4	D919 H7	D933 D9	DD13 C7	L908 E5	Q914 E6	QD10 B6	QD21 C6	R924 G11	R937 F8	RD10 C4		



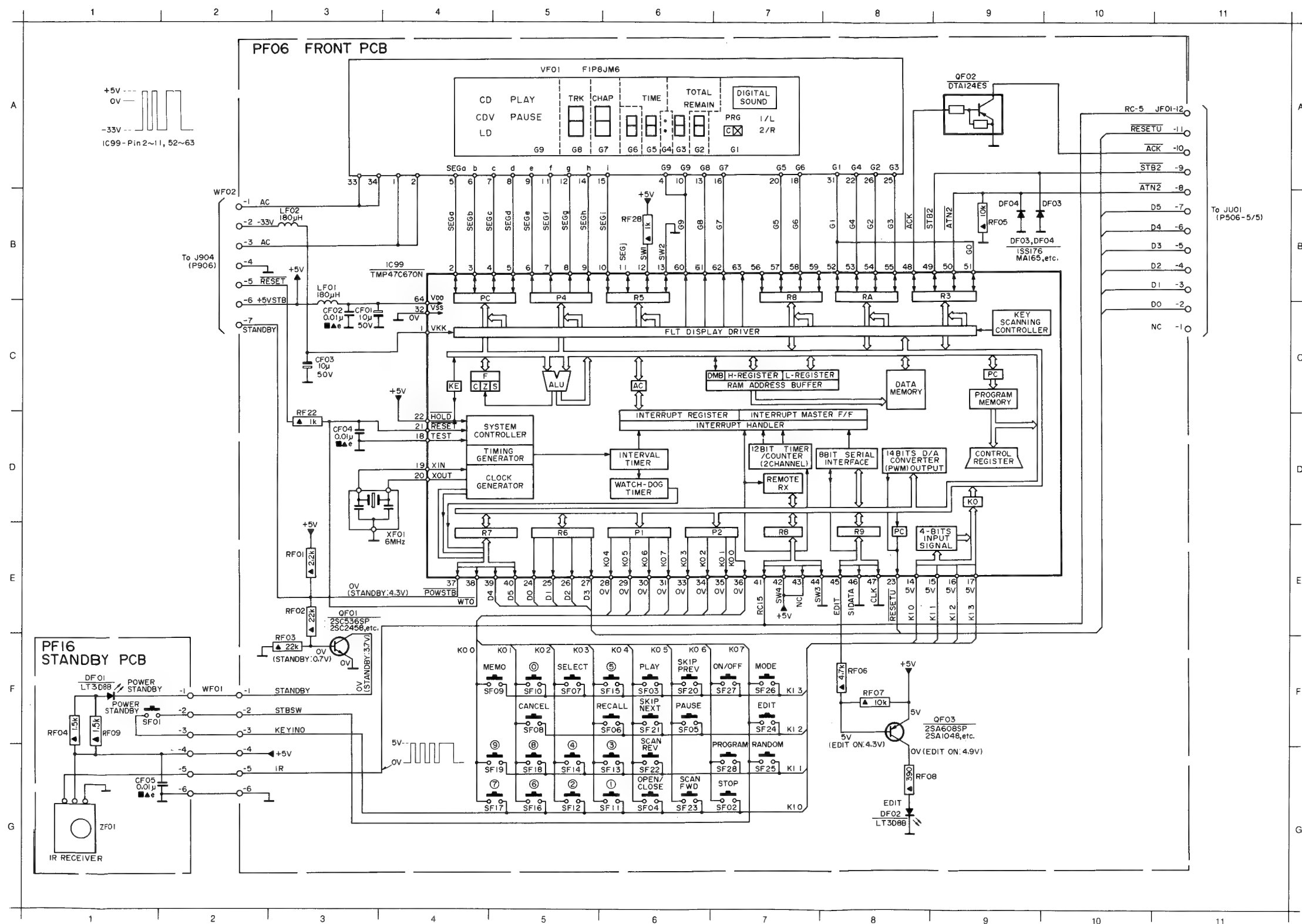
N.a P906 POWER SUPPLY/P916 TRANSFORMER/PD06 SPINDLE MOTOR

R	R920	R918 R917	R907		R936	R904 R937 R924 R922 R925	RD17 R923 R933 R932	R905	R938					R	
	R921 R919	R931 R911 R912	R927	R939 RD08 RD16 RD12 RD15 RD07 RD18 RD10 RD09 RD13	R935 R934 R910 R909										
C	C935	CD05	C934 C924	C933	CD08 C932 C924	C913 C937	C917 C929 C927 C911	C938 C928 C918	C914 C920	C941 C907 C919	C912 C930 C905	C903	C902	C	
	CD06	CD07			C921 C922	C926	CD02 CD09 C936 CD01	CD04 CD13 CD03 CD10	C916	C925	C908 C915	C931 C906	C910 C909		C904
Q - IC	Q913		Q903		IC86 Q907	Q905	IC87	Q906	Q902	Q901				Q - IC	
	Q916 Q915	Q914 Q908	Q909 Q904	QD10 QD05 QD09	QD12 QD08 QD07 QD11	QD06 QD02	QD01	Q911 QD04 QD03	Q912						
D - Z	Z906	D933	Z905	D930	D922	Z901 D929	D919 D923 D914 D903	D906 D902 D907	D913 D920 D925	DD02	Z904	D904 D916	D915 D926	D - Z	
			D927 Z903 Z902	D925 D928 DD08 DD04	Z907 DD07 DD03 DD10	DD09 DD06 DD05	DD52 DD01	D905	D912	D901					
F - L - T	LD02	LD01									L902 F902 F903 F901			L901	F - L - T





## O. PF06 FRONT/PF16 STANDBY SCHEMATIC DIAGRAMS



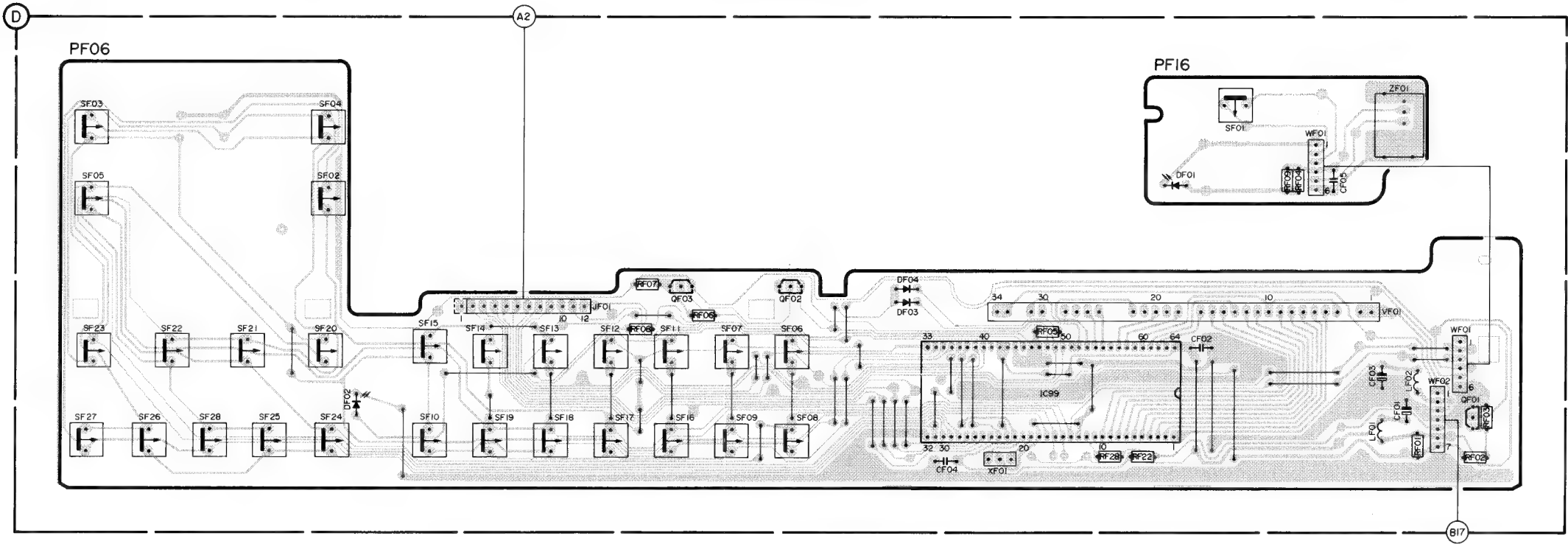
CF01	C3
CF02	C3
CF03	C3
CF04	D3
CF05	G1
DF01	G8
DF02	G8
DF03	B9
DF04	B9
IC99	B4
LI	B4
OF01	E3
OF02	A9
OF03	F8
RF01	E3
RF02	F3
RF03	F3
RF04	F1
RF05	B9
RF06	F8
RF07	F8
RF08	G8
RF09	F1
RF22	D3
SF01	B1
SF02	G6
SF03	F6
SF04	G6
SF05	F6
SF06	F5
SF07	F5
SF08	F5
SF09	F4
SF10	F4
SF11	G5
SF12	G5
SF13	G5
SF14	G5
SF15	G5
SF16	G5
SF17	G4
SF18	G5
SF19	G5
SF20	F6
SF21	F6
SF22	G6
SF23	G6
SF24	G6
SF25	G7
SF26	F7
SF27	F6
SF28	G6
SF29	G1
SF30	G1

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T12/047  
BEH. BY 45590B

P. PF06 FRONT/PF16 STANDBY PCBs

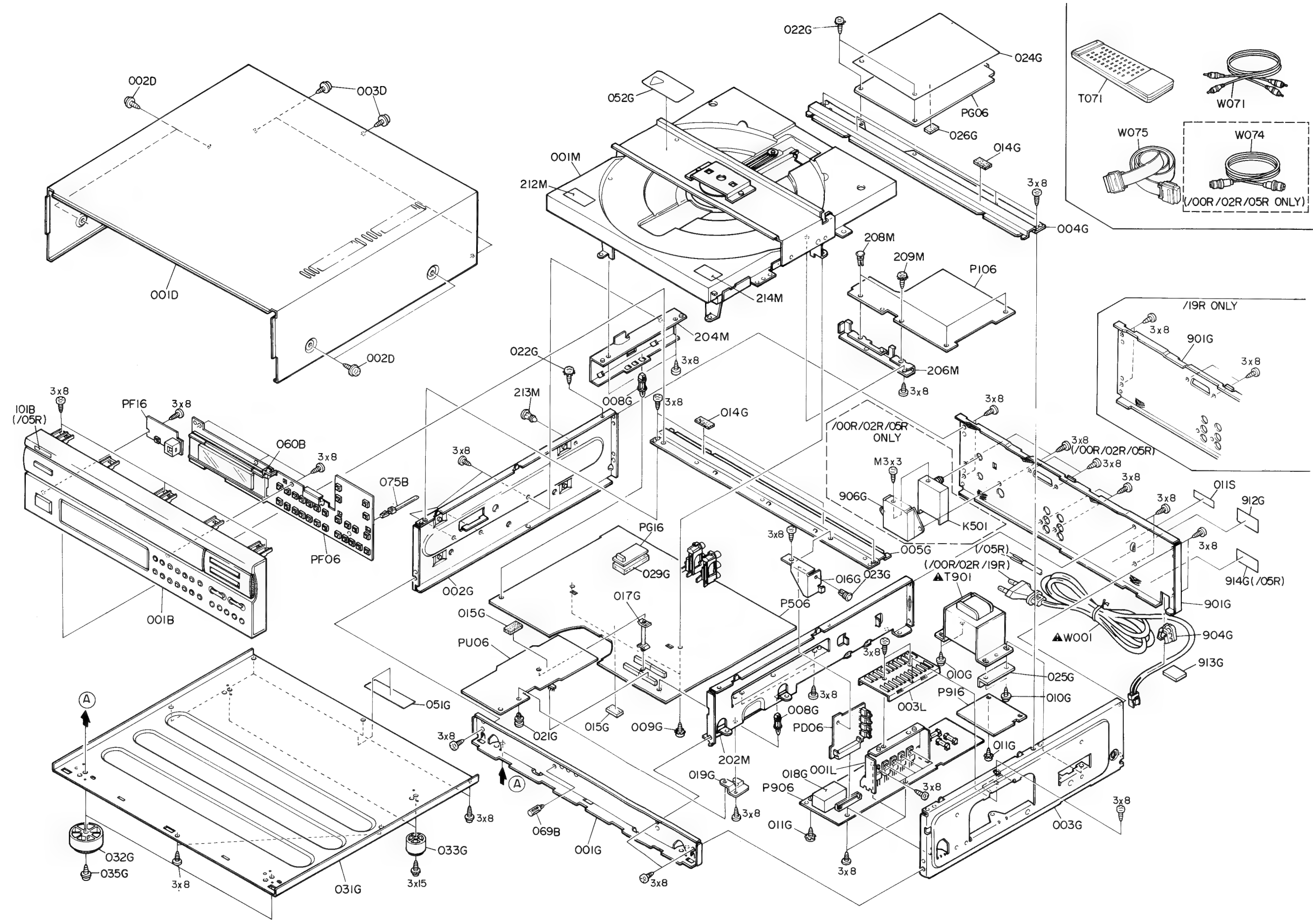
R	RF08 RF07 RF06										RF05	RF28	RF22	RF09 RF04		RF01	RF02 RF03	R
C											CF04	CF02		CF05 CF03 CF01		QF01	C	
Q-IC	QF03 QF02										IC99		QF01					Q-IC
D-Z	DF02										DF04 DF03		DF01		ZF01		D-Z	
L-S-V-X	SF03 SF05	SF22	SF21	SF04 SF02	SF15	SF14	SF13	SF12	SF11	SF07	SF06	SF01					L-S-V-X	
	SF27 SF23	SF26	SF28	SF25	SF24	SF10	SF19	SF18	SF17	SF16	SF09	SF08	XF01		VF01	LF01 LF02		

SOLDER SIDE VIEW

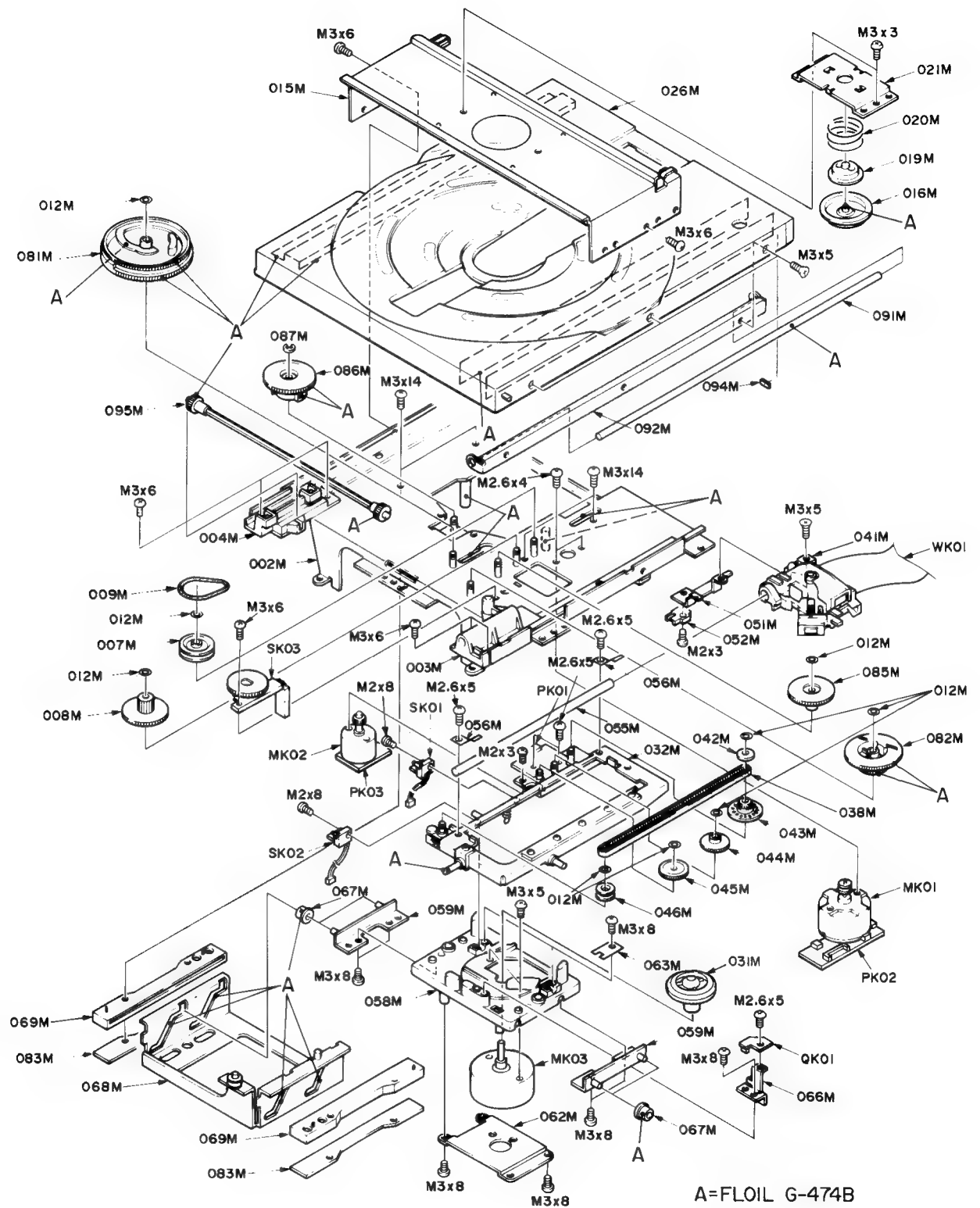


VII EXPLODED VIEWS

A. EXPLODED VIEW-1



### B. EXPLODED VIEW-2





# VIII PARTSLIST

## MECHANICAL PARTS

	4822 401 10632	TIRE WRAP.
001B	4822 444 40467	FRONTPANNEL
069B	4822 404 60687	BRACKET
075B	4822 401 11384	CLAMPING PIECE
001D	4822 444 60759	COVER
008G	4822 401 10944	SUPPORT
008G	4822 401 10944	SUPPORT
021G	4822 401 11383	CLAMPING PIECE
032G	4822 462 30527	FOOT
032G	4822 462 30527	FOOT
901G	4822 444 60762	REAR PANEL /00B
901G	4822 444 60761	REAR PANEL /19B
904G	4822 532 60948	BUSHING
021G	4822 401 11383	CLAMPING PIECE
021G	4822 401 11383	CLAMPING PIECE
021G	4822 401 11383	CLAMPING PIECE
W001	4822 321 10729	AC CORD
W071	4822 321 22832	SBC1072
W075	4822 321 61272	SCART/CINCH CABLE
T071	4822 218 10381	REMOTE CONTROL
W074	4822 321 61274	COAX CABLE
060B	4822 256 91749	FTD HOLDER
T901	4822 146 21598	TRANSFORMER TS16026040
K501	4822 214 51846	RF MODULATOR
		MDLK6D721A/ALPS
208M	4822 401 11383	SERVO RIVET
213M	4822 535 71081	SPACER

## PARTS DRAWER MECHANISM AND OPTICAL BLOCK

MK01	4822 361 30327	L MOTOR ASSY
MK02	4822 361 30328	SLED MOTOR ASSY
MK03	4822 361 30329	SPINDLE MOTOR ASSY
PK01	4822 214 51843	PK01
PK02	4822 214 51844	L MOTOR PCB
PK03	4822 214 51845	S MOTOR PCB
QK01	4822 130 82419	FG PCB ASSY
SK01	4822 271 30743	SW PCB FOR CD
SK02	4822 271 30744	SW PCB FOR LD
SK03	4822 273 10221	ROTARY SWITCH
WK01	4822 320 50211	FLAT CABLE
031M	4822 528 10821	TURNTABLE
003M	4822 462 30517	LOADING GUIDE(A)
004M	4822 462 30518	LOADING GUIDE(B) 2-
007M	4822 528 50323	LOADING PULLEY 2-
008M	4822 522 32992	GEAR B 2-
009M	4822 358 31104	LM BELT
012M	4822 532 12029	WASHER
016M	4822 532 12028	CLAMPER ASS'Y
019M	4822 532 12027	CLAMPER RETAINER
020M	4822 492 70831	SPRING
026M	4822 425 20203	TRAY ASS'Y (ABC1) B
038M	4822 358 31105	TIMING BELT
041M	4822 691 30237	PU ASS'Y KHS-130A
042M	4822 532 12031	HOLE PIECE
043M	4822 522 32995	GEAR V
044M	4822 522 32996	GEAR A2
045M	4822 522 32997	GEAR A1
046M	4822 528 50324	PULLEY
052M	4822 401 11385	BELT CLAMPER
055M	4822 535 93168	SLIDE SHAFT
056M	4822 401 11386	SHAFT CLAMPER
063M	4822 404 60686	CHASSIS STOPPER
067M	4822 528 90808	ROLLER
069M	4822 404 60684	SLIDE GUIDE
081M	4822 528 30395	CONTROL CAM
082M	4822 522 32993	LOADING GEAR
085M	4822 522 32994	GEAR A
086M	4822 528 30396	TILT CAM
087M	4822 530 70123	E RING
091M	4822 535 93169	LOADING SHAFT 2-
094M	4822 462 71728	CUSHION
095M	4822 522 32998	TRAY GEAR ASS'Y

## PARTSLIST MAINPANEL

			-II-		
	4822 051 10008	0R00 5% 0,25W	2235	4822 122 33339	4,7nF 10% X7R 50V 0805
	4822 051 10008	0R00 5% 0,25W	2236	5322 122 32661	56pF 5% 50V
	4822 051 10008	0R00 5% 0,25W	2237	5322 122 32531	100pF 5% NP0 50V
	4822 051 10008	0R00 5% 0,25W	2238	5322 122 34123	1nF 10% X7R 50V
	4822 051 10008	0R00 5% 0,25W	2239	5322 122 31946	27pF 10% 50V
	4822 051 10008	0R00 5% 0,25W	2240	4822 122 32542	47nF 10% X7R 63V
	4822 051 10008	0R00 5% 0,25W	2241	5322 122 32531	100pF 5% NP0 50V
Various			2242	5322 122 32531	100pF 5% NP0 50V
1401	4822 290 60998	YKC21-3054	2243	5322 122 32269	6,8pF 5% 50V
1715	4822 242 72527	CST4.00MGW-TF01	2244	4822 124 40435	10µF 20% 50V
-II-			2245	4822 122 33177	10nF 20% X7R 50V
2100	4822 122 31797	22nF 10% X7R 63V	2246	4822 124 41577	4,7µF 20% 50V
2110	5322 122 32966	39pF 5% NP0 50V	2247	4822 122 33177	10nF 20% X7R 50V
2111	4822 122 31797	22nF 10% X7R 63V	2248	4822 122 31797	22nF 10% X7R 63V
2112	4822 124 21739	ECEA1CKA220B	2249	5322 122 31946	27pF 10% 50V
2113	4822 124 21739	ECEA1CKA220B	2250	4822 122 32927	220nF
2114	4822 122 31797	22nF 10% X7R 63V	2251	4822 122 31797	22nF 10% X7R 63V
2115	5322 122 32452	47pF 5% 50V	2254	4822 122 31797	22nF 10% X7R 63V
2116	4822 122 31797	22nF 10% X7R 63V	2255	4822 122 31797	22nF 10% X7R 63V
2126	4822 124 40433	ELCAP 25V 47MU PM20	2256	4822 124 40433	47µF 20% 25V
2127	4822 124 40433	47µF 20% 25V	2258	4822 122 31797	22nF 10% X7R 63V
2130	4822 122 33339	SMD C0805 2N7 PM10	2259	4822 124 40433	47µF 20% 25V
2131	5322 122 31863	SMD C0805 330P PM5	2260	5322 122 31946	27pF 10% 50V
2132	4822 122 33806	SMD C0805 820P PM50	2261	5322 122 31946	27pF 10% 50V
2133	4822 122 33806	SMD C0805 820P PM50	2263	4822 122 33177	10nF 20% X7R 50V
2134	4822 122 33586	SMD C0805 3N9 PM10	2264	5322 122 32268	470pF 10% 50V
2135	4822 122 31797	22nF 10% X7R 63V	2265	5322 122 32965	18pF 5% NPO 50V
2137	4822 122 31797	22nF 10% X7R 63V	2266	4822 125 50092	40pF
2138	4822 122 31797	22nF 10% X7R 63V	2267	4822 125 50092	40pF
2140	4822 124 40196	220µF20% 16V	2268	5322 122 32965	18pF 5% NPO 50V
2141	4822 122 31797	22nF 10% X7R 63V	2269	5322 122 32659	33pF 5% 50V
2200	4822 122 31797	22nF 10% X7R 63V	2270	5322 122 32659	33pF 5% 50V
2201	4822 122 31797	22nF 10% X7R 63V	2271	4822 124 22048	ECEAOJKA221B
2202	4822 124 22048	ECEAOJKA221B	2272	4822 122 31797	22nF 10% X7R 63V
2204	4822 122 31797	22nF 10% X7R 63V	2274	4822 122 33216	270pF 5% NP0 50V
2205	4822 124 40433	47µF 20% 25V	2275	4822 122 31797	22nF 10% X7R 63V
2206	4822 122 31797	22nF 10% X7R 63V	2276	4822 122 31797	22nF 10% X7R 63V
2207	4822 124 40433	47µF 20% 25V	2277	4822 122 33496	100nF 10% X7R 63V
2208	4822 122 33496	100nF 10% X7R 63V	2278	4822 122 33496	100nF 10% X7R 63V
2210	4822 126 10326	180pF	2279	4822 122 31797	22nF 10% X7R 63V
2211	4822 122 31797	22nF 10% X7R 63V	2280	4822 121 43869	68nF 5% 50V
2212	4822 124 40433	47µF 20% 25V	2281	4822 121 41854	150nF 5% 63V
2213	4822 122 33175	2,2nF 20% X7R 50V	2282	4822 122 31797	22nF 10% X7R 63V
2214	4822 122 33177	10nF 20% X7R 50V	2283	4822 122 31797	22nF 10% X7R 63V
2215	4822 122 33669	150nF 20% 50V	2284	5322 122 32531	100pF 5% NP0 50V
2216	5322 122 32966	39pF 5% NP0 50V	2285	5322 122 32268	470pF 10% 50V
2217	4822 122 33064	330nF 80% Y5V 25V	2286	4822 122 33806	820pF 10% X7R 63V
2218	4822 122 31981	33nF +-0,5pF 50V	2287	4822 122 31797	22nF 10% X7R 63V
2219	4822 122 33891	3,3nF 10% X7R 63V	2288	4822 122 33177	10nF 20% X7R 50V
2220	4822 122 33891	3,3nF 10% X7R 63V	2296	4822 122 31797	22nF 10% X7R 63V
2221	5322 122 32531	100pF 5% NP0 50V	2297	4822 124 21739	ECEA1CKA220B
2223	4822 122 32542	47nF 10% X7R 63V	2300	4822 122 31797	22nF 10% X7R 63V
2224	4822 122 31797	22nF 10% X7R 63V	2301	4822 122 33177	10nF 20% X7R 50V
2225	5322 122 32965	18pF 5% NPO 50V	2305	5322 122 32966	39pF 5% NP0 50V
2226	4822 122 31797	22nF 10% X7R 63V	2306	4822 122 32139	12pF 5% 63V
2227	4822 124 40242	1µF 20% 63V	2307	4822 122 33515	82pF 5% NP0 63V
2228	4822 122 32542	47nF 10% X7R 63V	2308	4822 122 33496	100nF 10% X7R 63V
2229	4822 122 31797	22nF 10% X7R 63V	2309	4822 122 32927	220nF
2230	4822 122 33496	100nF 10% X7R 63V	2312	4822 122 32542	47nF 10% X7R 63V
2231	4822 126 10004	120pF 5% 63V	2313	5322 122 34123	1nF 10% X7R 50V
2232	5322 122 32448	10pF 5% 50V	2314	4822 124 40433	47µF 20% 25V
2233	5322 122 31946	27pF 10% 50V	2315	4822 122 31797	22nF 10% X7R 63V
2234	4822 122 33515	82pF 5% NP0 63V	2316	5322 122 32967	5,6pF 5% NP0 50V
			2317	4822 124 40433	47µF 20% 25V
			2318	4822 122 31797	22nF 10% X7R 63V
			2319	5322 122 32448	10pF 5% 50V

## PARTSLIST MAINPANEL (continued)

-II-			-II-		
2320	4822 122 31797	22nF 10% X7R 63V	2451	5322 122 32659	33pF 5% 50V
2321	5322 122 32287	4,7pF 5% NP0 50V	2452	4822 122 33339	4,7nF 10% X7R 50V 0805
2322	5322 122 32452	47pF 5% 50V	2453	4822 122 32575	220pF 10% 500V
2323	5322 122 32448	10pF 5% 50V	2454	4822 124 22048	ECEAOJKA221B
2324	4822 122 31797	22nF 10% X7R 63V	2455	4822 122 33496	100nF 10% X7R 63V
2325	4822 124 41577	4,7μF 20% 50V	2456	4822 124 21739	ECEA1CKA220B
2326	4822 124 40435	10μF 20% 50V	2457	4822 122 33336	8,2nF 10% X7R 50V
2327	4822 124 41577	4,7μF 20% 50V	2458	4822 124 21739	ECEA1CKA220B
2329	4822 124 40435	10μF 20% 50V	2459	4822 122 33336	8,2nF 10% X7R 50V
2330	4822 122 32542	47nF 10% X7R 63V	2460	4822 122 32575	220pF 10% 500V
2331	4822 122 31797	22nF 10% X7R 63V	2461	4822 122 33339	4,7nF 10% X7R 50V 0805
2332	4822 124 22048	ECEAOJKA221B	2462	5322 122 32659	33pF 5% 50V
2333	4822 124 22048	ECEAOJKA221B	2463	4822 122 32614	1,2nF 10% X7R 50V
2334	4822 122 31797	22nF 10% X7R 63V	2464	4822 124 21739	ECEA1CKA220B
2335	4822 124 22048	ECEAOJKA221B	2465	4822 126 10004	120pF 5% 63V
2336	4822 122 31797	22nF 10% X7R 63V	2466	5322 122 32268	470pF 10% 50V
2337	5322 122 32966	39pF 5% NP0 50V	2467	4822 122 33515	82pF 5% NP0 63V
2338	5322 122 32659	33pF 5% 50V	2468	4822 124 40433	47μF 20% 25V
2339	4822 122 32542	47nF 10% X7R 63V	2469	4822 122 31797	22nF 10% X7R 63V
2340	4822 122 31797	22nF 10% X7R 63V	2470	4822 122 32542	47nF 10% X7R 63V
2341	4822 122 33496	100nF 10% X7R 63V	2471	4822 124 22048	ECEAOJKA221B
2342	4822 126 10004	120pF 5% 63V	2472	4822 124 21739	ECEA1CKA220B
2343	4822 122 33515	82pF 5% NP0 63V	2473	4822 122 33177	10nF 20% X7R 50V
2344	5322 122 31946	27pF 10% 50V	2474	4822 124 21739	ECEA1CKA220B
2345	4822 122 33339	4,7nF 10% X7R 50V 0805	2475	4822 122 33177	10nF 20% X7R 50V
2346	5322 122 32661	56pF 5% 50V	2476	4822 124 21739	ECEA1CKA220B
2347	5322 122 32452	47pF 5% 50V	2477	4822 122 32542	47nF 10% X7R 63V
2348	5322 122 34123	1nF 10% X7R 50V	2478	4822 124 42202	0,47μF 20% 25V
2349	5322 122 34123	1nF 10% X7R 50V	2480	4822 124 41577	4,7μF 20% 50V
2350	4822 122 31797	22nF 10% X7R 63V	2485	4822 124 21739	ECEA1CKA220B
2351	4822 122 32542	47nF 10% X7R 63V	2486	5322 122 33538	150pF 5% NP0 63V
2353	4822 124 40196	220μF 20% 16V	2487	4822 122 32614	1,2nF 10% X7R 50V
2354	4822 122 31797	22nF 10% X7R 63V	2488	4822 122 31797	22nF 10% X7R 63V
2355	5322 122 32967	5,6pF 5% NP0 50V	2489	4822 124 40433	47μF 20% 25V
2361	4822 122 33175	2,2nF 20% X7R 50V	2490	4822 124 41577	4,7μF 20% 50V
2362	5322 122 31873	2,7pF +-0,5 100V	2491	4822 122 33893	18nF 10% X7R 63V
2363	4822 122 33496	100nF 10% X7R 63V	2492	4822 124 40433	47μF 20% 25V
2364	4822 122 31797	22nF 10% X7R 63V	2493	4822 122 31797	22nF 10% X7R 63V
2409	4822 122 31797	22nF 10% X7R 63V	2494	4822 124 40433	47μF 20% 25V
2410	4822 122 31797	22nF 10% X7R 63V	2495	4822 122 32542	47nF 10% X7R 63V
2411	4822 122 31797	22nF 10% X7R 63V	2497	4822 122 31797	22nF 10% X7R 63V
2412	4822 122 33515	82pF 5% NP0 63V	2498	4822 122 31797	22nF 10% X7R 63V
2413	4822 122 33336	8,2nF 10% X7R 50V	2500	4822 122 33339	4,7nF 10% X7R 50V 0805
2414	4822 122 31797	22nF 10% X7R 63V	2501	4822 122 33064	330nF 80% Y5V 25V
2415	5322 122 32659	33pF 5% 50V	2502	4822 124 40242	1μF 20% 63V
2420	4822 122 31797	22nF 10% X7R 63V	2503	4822 122 33724	120nF 20% Y5V 50V
2421	4822 124 22048	ECEAOJKA221B	2504	5322 122 32268	470pF 10% 50V
2422	4822 122 32575	220pF 10% 500V	2505	4822 124 40433	47μF 20% 25V
2423	4822 126 10326	180pF	2506	4822 122 31797	22nF 10% X7R 63V
2424	4822 124 21739	ECEA1CKA220B	2511	5322 122 31863	330pF 5% NP0 50V
2425	5322 122 32286	3,3pF 5% NP0 50V	2512	5322 122 31863	330pF 5% NP0 50V
2426	4822 126 10326	180pF	2513	4822 122 33339	4,7nF 10% X7R 50V 0805
2430	4822 122 31797	22nF 10% X7R 63V	2514	4822 124 41577	4,7μF 20% 50V
2431	4822 122 33893	18nF 10% X7R 63V	2524	4822 122 33806	820pF 10% X7R 63V
2432	4822 122 33177	10nF 20% X7R 50V	2525	4822 122 31797	22nF 10% X7R 63V
2433	4822 124 21739	ECEA1CKA220B	2530	4822 124 22048	ECEAOJKA221B
2434	4822 124 21739	ECEA1CKA220B	2531	4822 122 31797	22nF 10% X7R 63V
2435	5322 122 34123	1nF 10% X7R 50V	2533	4822 122 31797	22nF 10% X7R 63V
2440	4822 122 31797	22nF 10% X7R 63V	2534	4822 124 22048	ECEAOJKA221B
2441	4822 124 22048	ECEAOJKA221B	2535	4822 122 31797	22nF 10% X7R 63V
2442	5322 122 32269	6,8pF 5% 50V	2536	4822 122 31797	22nF 10% X7R 63V
2443	4822 122 32575	220pF 10% 500V	2537	4822 122 31797	22nF 10% X7R 63V
2444	4822 124 22048	ECEAOJKA221B	2538	4822 124 22048	ECEAOJKA221B
2445	4822 124 21739	ECEA1CKA220B	2540	4822 121 43868	1,5nF 5% 50V
2446	5322 122 34123	1nF 10% X7R 50V	2541	4822 121 43873	27nF 5% 50V
2450	4822 122 32614	1,2nF 10% X7R 50V	2542	4822 121 43899	1,8nF 5% 50V



## PARTSLIST MAINPANEL (continued)



2543	5322 121 42927	3,9nF 5% 250V
2546	4822 121 43897	1nF 5% 50V
2548	4822 124 41577	4,7μF 20% 50V
2549	4822 122 31797	22nF 10% X7R 63V
2550	4822 122 31797	22nF 10% X7R 63V
2551	4822 124 40196	220μF 20% 16V
2552	4822 124 40196	220μF 20% 16V
2553	4822 124 41577	4,7μF 20% 50V
2555	4822 121 43873	27nF 5% 50V
2556	4822 121 43899	1,8nF 5% 50V
2557	5322 121 42927	3,9nF 5% 250V
2558	4822 121 43897	1nF 5% 50V
2559	4822 121 43868	1,5nF 5% 50V
2560	4822 122 31797	22nF 10% X7R 63V
2561	4822 122 31797	22nF 10% X7R 63V
2567	4822 122 31797	22nF 10% X7R 63V
2570	5322 116 80853	560pF 5% NP0 63V
2580	4822 122 31797	22nF 10% X7R 63V
2590	4822 124 41577	4,7μF 20% 50V
2600	4822 126 10326	180pF
2602	4822 124 40433	47μF 20% 25V
2603	4822 122 33177	10nF 20% X7R 50V
2604	4822 124 41578	6,8μF 20% 50V
2606	4822 126 10326	180pF
2607	4822 126 10326	180pF
2608	4822 126 10326	180pF
2609	4822 122 31797	22nF 10% X7R 63V
2610	4822 122 33064	330nF 80% Y5V 25V
2611	4822 124 42201	4,7μF 20% 25V
2620	5322 122 31865	1,5nF 10% X7R 63V
2621	4822 124 40433	47μF 20% 25V
2622	5322 122 34123	1nF 10% X7R 50V
2623	4822 122 31797	22nF 10% X7R 63V
2627	5322 122 31946	27pF 10% 50V
2630	5322 122 34123	1nF 10% X7R 50V
2631	5322 122 34123	1nF 10% X7R 50V
2632	5322 122 34123	1nF 10% X7R 50V
2633	5322 122 34123	1nF 10% X7R 50V
2640	4822 122 31797	22nF 10% X7R 63V
2641	4822 122 31797	22nF 10% X7R 63V
2642	4822 124 40433	47μF 20% 25V
2643	4822 122 31797	22nF 10% X7R 63V
2644	4822 124 40433	47μF 20% 25V
2700	4822 122 31797	22nF 10% X7R 63V
2701	4822 124 40433	47μF 20% 25V
2705	5322 122 32659	33pF 5% 50V
2706	4822 122 33543	15nF 10% X7R 50V
2707	5322 122 32658	22pF 5% 50V
2708	5322 122 32658	22pF 5% 50V
2710	4822 122 31797	22nF 10% X7R 63V
2720	4822 126 10326	180pF
2724	5322 122 32268	470pF 10% 50V
2742	4822 122 31797	22nF 10% X7R 63V
2760	5322 122 32268	470pF 10% 50V
2798	4822 122 31797	22nF 10% X7R 63V
2799	4822 122 31797	22nF 10% X7R 63V





3110	4822 050 23901	390R00 1% 0,6W
3111	4822 051 10471	470R00 2% 0,25W
3112	4822 116 52224	470E 5% 0,5W
3113	4822 100 11426	RH0634CS2R06A
3114	4822 050 23901	390R00 1% 0,6W
3115	4822 051 10102	1K00 2% 0,25W
3117	4822 050 21002	1K00 1% 0,6W
3118	4822 100 11386	RH063HC13R04A
3119	4822 051 10103	10K00 2% 0,25W
3120	4822 051 10102	1K00 2% 0,25W
3121	4822 051 10103	10K00 2% 0,25W
3122	4822 051 10103	10K00 2% 0,25W
3123	4822 051 10103	10K00 2% 0,25W
3124	4822 051 10103	10K00 2% 0,25W
3125	4822 051 10332	3K30 2% 0,25W
3126	4822 050 22202	2K20 1% 0,6W
3127	4822 050 13303	FLMRST 1/8W 33K PM5
3128	4822 051 10103	FLMRST 1/8W 10K PM5
3129	4822 051 10471	FLMRST 1/8W470R PM5
3130	4822 050 16809	FLMRST 1/8W68R PM5
3131	4822 050 27509	FLMRST 1/8W75R PM5
3132	4822 050 21003	10K00 1% 0,6W
3133	4822 050 24702	4K70 1% 0,6W
3134	4822 050 16809	68R00 1% 0,4W
3135	4822 050 13303	33K00 1% 0,4W
3140	4822 052 10108	1R00 5% 0,33W
3141	4822 051 10103	10K00 2% 0,25W
3142	4822 051 10103	10K00 2% 0,25W
3145	4822 051 10101	100R00 2% 0,25W
3200	4822 052 11151	150R00 5% 0,5W
3201	4822 051 10102	1K00 2% 0,25W
3202	4822 052 10109	10R00 5% 0,33W
3203	4822 052 10109	10R00 5% 0,33W
3210	4822 052 10569	56R00 5% 0,33W
3211	4822 050 21203	12K00 1% 0,6W
3212	4822 051 10561	560R00 2% 0,25W
3213	4822 050 26802	6K80 1% 0,6W
3214	4822 050 22201	220R00 1% 0,6W
3215	4822 050 23901	390R00 1% 0,6W
3216	4822 050 21201	120R00 1% 0,6W
3217	4822 051 10103	10K00 2% 0,25W
3218	4822 050 24705	4M70 1% 0,6W
3219	4822 050 23301	330R00 1% 0,6W
3221	4822 050 22203	22K00 1% 0,6W
3222	4822 051 10223	22K00 2% 0,25W
3224	4822 051 10223	22K00 2% 0,25W
3225	4822 051 10102	1K00 2% 0,25W
3226	4822 051 10102	1K00 2% 0,25W
3227	4822 051 10101	100R00 2% 0,25W
3228	4822 051 10682	6K80 2% 0,25W
3229	4822 050 21002	1K00 1% 0,6W
3230	4822 050 21101	110R00 1% 0,6W
3231	4822 050 23302	3K30 1% 0,6W
3232	4822 051 10104	100K00 2% 0,25W
3233	4822 051 10101	100R00 2% 0,25W
3234	4822 116 52235	1M 5% 0,5W
3235	4822 050 24703	47K00 1% 0,6W
3236	4822 050 22202	2K20 1% 0,6W
3237	4822 050 24702	4K70 1% 0,6W
3238	4822 116 52224	470E 5% 0,5W
3240	4822 051 10102	1K00 2% 0,25W
3241	4822 051 10561	560R00 2% 0,25W
3242	4822 051 10102	1K00 2% 0,25W
3243	4822 052 10109	10R00 5% 0,33W
3244	4822 051 10471	470R00 2% 0,25W
3245	4822 051 10472	4K70 2% 0,25W





3100	4822 051 10101	100R00 2% 0,25W
3101	4822 051 10681	680R00 2% 0,25W
3102	4822 116 52224	470E 5% 0,5W
3105	4822 051 10152	1K50 2% 0,25W
3106	4822 051 10102	1K00 2% 0,25W
3108	4822 051 10682	6K80 2% 0,25W
3109	4822 051 10682	6K80 2% 0,25W






## PARTSLIST MAINPANEL (continued)

					
3246	4822 052 11151	150R00 5% 0,5W	3323	4822 051 10561	560R00 2% 0,25W
3247	4822 051 10331	330R00 2% 0,25W	3324	4822 050 21501	150R00 1% 0,6W
3248	4822 051 20222	2K20 5% 0,1W	3325	4822 051 10102	1K00 2% 0,25W
3249	4822 051 10102	1K00 2% 0,25W	3326	4822 050 23305	3M30 1% 0,6W
3250	4822 050 21002	1K00 1% 0,6W	3327	4822 050 22204	220K00 1% 0,6W
3255	4822 050 21203	12K00 1% 0,6W	3330	4822 052 10478	4R70 5% 0,33W
3256	4822 116 52263	2K7 5% 0,5W	3331	4822 052 10478	4R70 5% 0,33W
3257	4822 051 10682	6K80 2% 0,25W	3332	4822 052 10478	4R70 5% 0,33W
3258	4822 051 10561	560R00 2% 0,25W	3333	4822 050 21502	1K50 1% 0,6W
3260	4822 051 10102	1K00 2% 0,25W	3334	4822 050 27501	750R00 1% 0,6W
3261	4822 050 24702	4K70 1% 0,6W	3335	4822 051 10682	6K80 2% 0,25W
3262	4822 051 10103	10K00 2% 0,25W	3336	4822 051 10682	6K80 2% 0,25W
3263	4822 051 10103	10K00 2% 0,25W	3337	4822 051 10101	100R00 2% 0,25W
3264	4822 051 10472	4K70 2% 0,25W	3338	4822 050 21502	1K50 1% 0,6W
3265	4822 050 24704	470K00 1% 0,6W	3339	4822 050 26802	6K80 1% 0,6W
3266	4822 051 10182	1K80 2% 0,25W	3340	4822 050 26802	6K80 1% 0,6W
3267	4822 051 10331	330R00 2% 0,25W	3341	4822 050 26801	680R00 1% 0,6W
3268	4822 051 10102	1K00 2% 0,25W	3342	4822 051 10101	100R00 2% 0,25W
3269	4822 116 52224	470E 5% 0,5W	3343	4822 050 15602	5K60 1% 0,4W
3270	4822 051 10471	470R00 2% 0,25W	3344	4822 050 17502	7K50 1% 0,4W
3271	4822 051 10102	1K00 2% 0,25W	3346	4822 051 10101	100R00 2% 0,25W
3272	4822 051 10331	330R00 2% 0,25W	3347	4822 050 21003	10K00 1% 0,6W
3273	4822 051 10122	1K20 2% 0,25W	3348	4822 051 10331	330R00 2% 0,25W
3274	4822 050 25603	56K00 1% 0,6W	3349	4822 051 10681	680R00 2% 0,25W
3276	4822 050 25603	56K00 1% 0,6W	3350	4822 050 28201	820R00 1% 0,6W
3277	4822 050 22404	240K00 1% 0,6W	3351	4822 052 10109	10R00 5% 0,33W
3278	4822 050 13303	33K00 1% 0,4W	3352	4822 051 20222	2K20 5% 0,1W
3279	4822 050 29103	91K00 1% 0,6W	3353	4822 051 10331	330R00 2% 0,25W
3280	4822 050 26803	68K00 1% 0,6W	3354	4822 100 11426	RH0634CS2R06A
3281	4822 050 26803	68K00 1% 0,6W	3355	4822 051 10471	470R00 2% 0,25W
3282	4822 116 52264	27K 5% 0,5W	3356	4822 050 16809	68R00 1% 0,4W
3283	4822 051 10153	15K00 2% 0,25W	3360	4822 050 16809	68R00 1% 0,4W
3284	4822 051 10561	560R00 2% 0,25W	3361	4822 050 27509	75R00 1% 0,6W
3285	4822 051 10102	1K00 2% 0,25W	3363	4822 051 10101	100R00 2% 0,25W
3286	4822 050 21504	150K00 1% 0,6W	3364	4822 051 10471	470R00 2% 0,25W
3287	4822 116 52303	8K2 5% 0,5W	3365	4822 051 10101	100R00 2% 0,25W
3288	4822 051 10332	3K30 2% 0,25W	3370	4822 051 20222	2K20 5% 0,1W
3289	4822 116 52244	15K 5% 0,5W	3371	4822 051 10331	330R00 2% 0,25W
3290	4822 100 11426	RH0634CS2R06A	3372	4822 051 10331	330R00 2% 0,25W
3291	4822 050 22202	2K20 1% 0,6W	3401	4822 051 10101	100R00 2% 0,25W
3292	4822 050 27501	750R00 1% 0,6W	3402	4822 051 10221	220R00 2% 0,25W
3293	4822 050 23902	3K90 1% 0,6W	3404	4822 051 10331	330R00 2% 0,25W
3294	4822 051 10182	1K80 2% 0,25W	3405	4822 051 10122	1K20 2% 0,25W
3295	4822 051 10102	1K00 2% 0,25W	3406	4822 051 10682	6K80 2% 0,25W
3296	4822 051 10102	1K00 2% 0,25W	3407	4822 051 10122	1K20 2% 0,25W
3297	4822 050 21801	180R00 1% 0,6W	3408	4822 051 10332	3K30 2% 0,25W
3298	4822 052 10569	56R00 5% 0,33W	3409	4822 050 23909	39R00 1% 0,6W
3300	4822 050 23001	300R00 1% 0,6W	3411	4822 050 27509	75R00 1% 0,6W
3301	4822 051 10471	470R00 2% 0,25W	3412	4822 051 10681	680R00 2% 0,25W
3302	4822 052 11151	150R00 5% 0,5W	3413	4822 051 10152	1K50 2% 0,25W
3303	4822 051 10103	10K00 2% 0,25W	3420	4822 051 10102	1K00 2% 0,25W
3306	4822 050 25102	5K10 1% 0,6W	3421	4822 051 10102	1K00 2% 0,25W
3308	4822 051 10331	330R00 2% 0,25W	3422	4822 051 10122	1K20 2% 0,25W
3309	4822 051 10331	330R00 2% 0,25W	3423	4822 051 10472	4K70 2% 0,25W
3311	4822 116 52217	270E 5% 0,5W	3424	4822 051 10682	6K80 2% 0,25W
3312	4822 116 52186	22E 5% 0,5W	3430	4822 051 10153	15K00 2% 0,25W
3313	4822 051 10102	1K00 2% 0,25W	3431	4822 051 10102	1K00 2% 0,25W
3314	4822 051 10151	150R00 2% 0,25W	3432	4822 051 10102	1K00 2% 0,25W
3315	4822 051 10472	4K70 2% 0,25W	3433	4822 051 10473	47K00 2% 0,25W
3316	4822 050 21301	130R00 1% 0,6W	3434	4822 051 10104	100K00 2% 0,25W
3317	4822 051 10151	150R00 2% 0,25W	3435	4822 051 10104	100K00 2% 0,25W
3318	4822 051 10152	1K50 2% 0,25W	3440	4822 051 10102	1K00 2% 0,25W
3319	4822 050 21301	130R00 1% 0,6W	3441	4822 051 10102	1K00 2% 0,25W
3320	4822 051 10472	4K70 2% 0,25W	3442	4822 051 10272	2K70 2% 0,25W
3321	4822 051 10151	150R00 2% 0,25W	3443	4822 051 10472	4K70 2% 0,25W
3322	4822 051 10151	150R00 2% 0,25W	3444	4822 051 10682	6K80 2% 0,25W

## PARTSLIST MAINPANEL (continued)

					
3445	4822 051 10182	1K80 2% 0,25W	3519	4822 051 10104	100K00 2% 0,25W
3446	4822 051 10472	4K70 2% 0,25W	3520	4822 051 10473	47K00 2% 0,25W
3447	4822 051 10104	100K00 2% 0,25W	3521	4822 050 26803	68K00 1% 0,6W
3450	4822 051 10182	1K80 2% 0,25W	3522	4822 051 10472	4K70 2% 0,25W
3451	4822 051 10472	4K70 2% 0,25W	3523	4822 050 28203	82K00 1% 0,6W
3452	4822 050 21203	12K00 1% 0,6W	3524	4822 050 23904	390K00 1% 0,6W
3453	4822 051 10104	100K00 2% 0,25W	3525	4822 050 25603	56K00 1% 0,6W
3454	4822 050 21504	150K00 1% 0,6W	3533	4822 052 10478	4R70 5% 0,33W
3455	4822 050 21504	150K00 1% 0,6W	3540	4822 051 10102	1K00 2% 0,25W
3456	4822 051 10153	15K00 2% 0,25W	3541	4822 050 24705	4M70 1% 0,6W
3457	4822 051 10223	22K00 2% 0,25W	3542	4822 051 10561	560R00 2% 0,25W
3458	4822 051 10104	100K00 2% 0,25W	3543	4822 050 22702	2K70 1% 0,6W
3459	4822 051 10153	15K00 2% 0,25W	3544	4822 051 10122	1K20 2% 0,25W
3460	4822 051 10223	22K00 2% 0,25W	3545	4822 051 10122	1K20 2% 0,25W
3461	4822 116 52264	27K 5% 0,5W	3546	4822 050 12402	2K40 1% 0,4W
3462	4822 051 10682	6K80 2% 0,25W	3547	4822 051 10122	1K20 2% 0,25W
3463	4822 051 10122	1K20 2% 0,25W	3548	4822 051 10223	22K00 2% 0,25W
3464	4822 051 10471	470R00 2% 0,25W	3550	4822 051 20222	2K20 5% 0,1W
3465	4822 050 21002	1K00 1% 0,6W	3551	4822 052 10109	10R00 5% 0,33W
3466	4822 051 10221	220R00 2% 0,25W	3552	4822 052 10109	10R00 5% 0,33W
3467	4822 050 23901	390R00 1% 0,6W	3553	4822 051 10223	22K00 2% 0,25W
3468	4822 051 20222	2K20 5% 0,1W	3555	4822 051 10122	1K20 2% 0,25W
3470	4822 051 10682	6K80 2% 0,25W	3556	4822 051 10122	1K20 2% 0,25W
3471	4822 050 21804	180K00 1% 0,6W	3557	4822 050 12402	2K40 1% 0,4W
3472	4822 050 21804	180K00 1% 0,6W	3558	4822 051 10122	1K20 2% 0,25W
3473	4822 050 22202	2K20 1% 0,6W	3559	4822 050 22702	2K70 1% 0,6W
3474	4822 050 22203	22K00 1% 0,6W	3560	4822 051 10561	560R00 2% 0,25W
3475	4822 051 20222	2K20 5% 0,1W	3561	4822 051 10102	1K00 2% 0,25W
3476	4822 051 10223	22K00 2% 0,25W	3562	4822 050 24705	4M70 1% 0,6W
3477	4822 051 10682	6K80 2% 0,25W	3565	4822 051 10473	47K00 2% 0,25W
3478	4822 050 23902	3K90 1% 0,6W	3566	4822 051 10473	47K00 2% 0,25W
3479	4822 050 21003	10K00 1% 0,6W	3567	4822 050 22204	220K00 1% 0,6W
3480	4822 050 21003	10K00 1% 0,6W	3568	4822 050 22204	220K00 1% 0,6W
3481	4822 051 10332	3K30 2% 0,25W	3570	4822 050 21002	1K00 1% 0,6W
3482	4822 051 10102	1K00 2% 0,25W	3571	4822 051 10102	R1206 1/8W 1K0 PM5
3483	4822 051 10561	560R00 2% 0,25W	3572	4822 051 20222	2K20 5% 0,1W
3484	4822 051 10102	1K00 2% 0,25W	3573	4822 051 10331	R1206 1/8W330R PM5
3485	4822 050 24702	4K70 1% 0,6W	3575	4822 050 21002	1K00 1% 0,6W
3486	4822 051 10682	6K80 2% 0,25W	3576	4822 051 10102	R1206 1/8W 1K0 PM5
3487	4822 051 10122	1K20 2% 0,25W	3577	4822 051 20222	2K20 5% 0,1W
3488	4822 051 10681	680R00 2% 0,25W	3578	4822 051 20222	R1206 1/8W 2K2 PM5
3489	4822 050 23301	330R00 1% 0,6W	3590	4822 050 21003	10K00 1% 0,6W
3490	4822 050 23301	330R00 1% 0,6W	3591	4822 050 21002	1K00 1% 0,6W
3491	4822 051 10682	6K80 2% 0,25W	3592	4822 050 21002	1K00 1% 0,6W
3492	4822 051 10101	100R00 2% 0,25W	3600	4822 051 10471	470R00 2% 0,25W
3493	4822 051 10471	470R00 2% 0,25W	3601	4822 051 10471	470R00 2% 0,25W
3494	4822 116 52217	270E 5% 0,5W	3603	4822 050 13303	33K00 1% 0,4W
3495	4822 051 10103	10K00 2% 0,25W	3604	4822 050 22704	270K00 1% 0,6W
3497	4822 051 10102	1K00 2% 0,25W	3605	4822 051 10223	22K00 2% 0,25W
3500	4822 051 10223	22K00 2% 0,25W	3606	4822 051 10471	470R00 2% 0,25W
3501	4822 051 10102	1K00 2% 0,25W	3607	4822 116 52224	470E 5% 0,5W
3502	4822 050 22205	2M20 1% 0,6W	3608	4822 051 10471	470R00 2% 0,25W
3503	4822 050 22202	2K20 1% 0,6W	3609	4822 116 52234	100K 5% 0,5W
3504	4822 051 10102	1K00 2% 0,25W	3610	4822 051 10182	1K80 2% 0,25W
3505	4822 050 21204	120K00 1% 0,6W	3611	4822 116 52234	100K 5% 0,5W
3508	4822 116 52234	100K 5% 0,5W	3612	4822 051 10182	1K80 2% 0,25W
3509	4822 050 21003	10K00 1% 0,6W	3614	4822 050 26803	68K00 1% 0,6W
3510	4822 050 22204	220K00 1% 0,6W	3615	4822 050 21002	1K00 1% 0,6W
3511	4822 116 52235	1M 5% 0,5W	3616	4822 052 10109	10R00 5% 0,33W
3512	4822 116 52235	1M 5% 0,5W	3620	4822 051 10104	100K00 2% 0,25W
3513	4822 051 10472	4K70 2% 0,25W	3621	4822 050 21002	1K00 1% 0,6W
3514	4822 051 10153	15K00 2% 0,25W	3622	4822 050 21003	10K00 1% 0,6W
3515	4822 051 10104	100K00 2% 0,25W	3623	4822 050 13303	33K00 1% 0,4W
3516	4822 051 10104	100K00 2% 0,25W	3624	4822 116 52234	100K 5% 0,5W
3517	4822 051 10102	1K00 2% 0,25W	3625	4822 050 24703	47K00 1% 0,6W
3518	4822 050 21804	180K00 1% 0,6W	3626	4822 050 15602	5K60 1% 0,4W

## PARTSLIST MAINPANEL (continued)

							
3627	4822 051 10472	4K70 2% 0,25W		5272	4822 157 53303		
3628	4822 050 21003	10K00 1% 0,6W		5306	4822 152 20677		
3630	4822 051 10472	4K70 2% 0,25W		5308	4822 242 73555	5,900 000 MC	
3635	4822 051 10103	10K00 2% 0,25W		5328	4822 242 73842	FM12223011	
3636	4822 050 24702	4K70 1% 0,6W		5337	4822 152 20678	33UH10%	
3637	4822 050 24703	47K00 1% 0,6W		5338	4822 157 63316		
3640	4822 050 21002	1K00 1% 0,6W		5342	4822 157 51503		
3641	4822 051 10102	1K00 2% 0,25W		5343	4822 157 52983	2N2	
3700	4822 050 21501	150R00 1% 0,6W		5345	4822 157 52983	2N2	
3701	4822 050 21003	10K00 1% 0,6W		5347	4822 157 53001	27MUH10%	
3702	4822 050 21003	10K00 1% 0,6W		5360	4822 157 63317		
3703	4822 050 21003	10K00 1% 0,6W		5400	4822 157 62901	LC13950011	
3705	4822 050 24702	4K70 1% 0,6W		5401	4822 242 73892	1.7MHZ	
3706	4822 050 21003	10K00 1% 0,6W		5440	4822 242 73977		
3707	4822 050 26803	68K00 1% 0,6W		5506	4822 242 73842	FM12223011	
3708	4822 050 21002	1K00 1% 0,6W		5510	4822 242 73586	8.467 200 MC	
3709	4822 051 10103	10K00 2% 0,25W		5530	4822 242 73842	FM12223011	
3712	4822 050 21003	10K00 1% 0,6W		5532	4822 242 73842	FM12223011	
3713	4822 050 21003	10K00 1% 0,6W		5640	4822 242 73842	FM12223011	
3714	4822 050 21003	10K00 1% 0,6W		5641	4822 242 73842	FM12223011	
3715	4822 050 21003	10K00 1% 0,6W		5708	4822 157 63315		
3716	4822 050 22204	220K00 1% 0,6W					
3720	4822 051 10472	4K70 2% 0,25W					
3721	4822 051 10472	4K70 2% 0,25W		6120	4822 130 31253	BZX79-C2V4 (UAW)	
3722	4822 051 10472	4K70 2% 0,25W		6126	4822 130 34048	BZX75-C2V8	
3723	4822 051 10472	4K70 2% 0,25W		6200	4822 130 30621	1N4148 (UAW)	
3724	4822 051 10103	10K00 2% 0,25W		6201	4822 130 34167	BZX79-C6V2 (UAW)	
3725	4822 051 10182	1K80 2% 0,25W		6225	4822 130 30621	1N4148 (UAW)	
3726	4822 051 10472	4K70 2% 0,25W		6245	4822 130 30862	BZX79-C9V1 (UAW)	
3727	4822 050 24702	4K70 1% 0,6W		6260	4822 130 30621	1N4148 (UAW)	
3728	4822 050 24702	4K70 1% 0,6W		6285	4822 130 30621	1N4148 (UAW)	
3730	4822 116 52234	100K 5% 0,5W		6286	4822 130 30621	1N4148 (UAW)	
3731	4822 051 10103	10K00 2% 0,25W		6292	4822 130 34174	BZX79-C4V7 (UAW)	
3742	4822 050 22202	2K20 1% 0,6W		6293	4822 130 34174	BZX79-C4V7 (UAW)	
3753	4822 050 22203	22K00 1% 0,6W		6295	4822 130 30621	1N4148 (UAW)	
3754	4822 050 22203	22K00 1% 0,6W		6297	4822 130 33668	BZX55-B9V1	
3760	4822 051 10103	10K00 2% 0,25W		6300	4822 130 30621	1N4148 (UAW)	
3761	4822 051 10182	1K80 2% 0,25W		6301	4822 130 33668	BZX55-B9V1	
				6317	4822 130 33668	BZX55-B9V1	
5102	4822 157 63322			6350	5322 130 34834	BZX79-C3V6 (UAW)	
5110	4822 152 20677			6400	4822 130 34167	BZX79-C6V2 (UAW)	
5111	4822 320 40252			6401	4822 130 30621	1N4148 (UAW)	
5114	4822 152 20677			6402	4822 130 30621	1N4148 (UAW)	
5115	4822 157 63321			6501	4822 130 30621	1N4148 (UAW)	
5130	4822 157 62923	COIL 7.5 UH		6511	4822 130 31129	BB212	
5131	4822 157 60123	FXDINDA02 6MUH8 PM10		6513	4822 130 30621	1N4148 (UAW)	
5133	4822 157 62552	FXDINDA02 2MUH2 PM20		6517	4822 130 30621	1N4148 (UAW)	
5135	4822 242 73842	EMI FILTER DSS306 91		6518	4822 130 34167	BZX79-C6V2 (UAW)	
5136	4822 242 73842	EMI FILTER DSS306 91		6604	4822 130 30621	1N4148 (UAW)	
5200	4822 242 73842	FM12223011		6605	4822 130 30621	1N4148 (UAW)	
5201	4822 242 73842	FM12223011		6608	4822 130 30621	1N4148 (UAW)	
5202	4822 242 73842	FM12223011		6609	4822 130 30621	1N4148 (UAW)	
5210	4822 157 63318			6614	4822 130 30621	1N4148 (UAW)	
5211	4822 157 63319			6615	4822 130 30621	1N4148 (UAW)	
5216	4822 157 60123			6620	4822 130 30621	1N4148 (UAW)	
5225	4822 157 53267	SLP102535C3C-4223-01		6621	4822 130 30621	1N4148 (UAW)	
5233	4822 157 52983	2N2		6622	4822 130 30621	1N4148 (UAW)	
5235	4822 157 52983	2N2		6626	4822 130 30621	1N4148 (UAW)	
5240	4822 157 53906	47UH					
5249	4822 157 53303			7100	5322 130 41982	BC848B (UAW)	
5260	4822 157 52983	2N2		7109	5322 130 41982	BC848B (UAW)	
5265	4822 242 73902	JX15001261		7115	5322 130 41982	BC848B (UAW)	
5267	4822 242 73903	JX17001261		7121	5322 130 41982	BC848B (UAW)	
5269	4822 157 53303						

## PARTSLIST MAINPANEL (continued)








7124	5322 130 41982	BC848B (UAW)
7125	5322 130 41982	BC848B (UAW)
7126	5322 130 41982	BC848B (UAW)
7134	4822 130 40937	BC548B (UAW)
7135	5322 130 41982	BC848B (UAW)
7200	5322 130 41982	BC848B (UAW)
7210	5322 130 41983	BC858B (UAW)
7211	5322 130 41982	BC848B (UAW)
7227	5322 130 41983	BC858B (UAW)
7235	5322 130 41983	BC858B (UAW)
7243	5322 130 41982	BC848B (UAW)
7262	5322 130 41983	BC858B (UAW)
7270	5322 130 41982	BC848B (UAW)
7272	5322 130 41982	BC848B (UAW)
7273	5322 130 41982	BC848B (UAW)
7300	5322 130 41982	BC848B (UAW)
7303	5322 130 41983	BC858B (UAW)
7304	5322 130 41982	BC848B (UAW)
7305	5322 130 41983	BC858B (UAW)
7306	5322 130 41982	BC848B (UAW)
7296	4822 130 42131	BF550
7314	4822 130 42353	BFS19
7316	4822 130 42353	BFS19
7317	4822 130 42131	BF550
7318	4822 130 42353	BFS19
7319	4822 130 42353	BFS19
7321	4822 130 42131	BF550
7333	5322 130 41983	BC858B (UAW)
7335	5322 130 41982	BC848B (UAW)
7338	5322 130 41983	BC858B (UAW)
7339	5322 130 41982	BC848B (UAW)
7347	5322 130 41982	BC848B (UAW)
7348	5322 130 41982	BC848B (UAW)
7353	5322 130 41982	BC848B (UAW)
7354	5322 130 41983	BC858B (UAW)
7355	5322 130 41982	BC848B (UAW)
7364	5322 130 41982	BC848B (UAW)
7365	5322 130 41983	BC858B (UAW)
7400	5322 130 41982	BC848B (UAW)
7401	5322 130 41982	BC848B (UAW)
7402	5322 130 41982	BC848B (UAW)
7403	5322 130 41982	BC848B (UAW)
7404	5322 130 41982	BC848B (UAW)
7405	5322 130 41982	BC848B (UAW)
7407	5322 130 41982	BC848B (UAW)
7408	5322 130 41982	BC848B (UAW)
7409	5322 130 41982	BC848B (UAW)
7410	5322 130 41982	BC848B (UAW)
7507	5322 130 41982	BC848B (UAW)
7519	5322 130 41982	BC848B (UAW)
7520	5322 130 41982	BC848B (UAW)
7540	5322 130 41982	BC848B (UAW)
7561	5322 130 41982	BC848B (UAW)
7572	4822 130 42675	BC818 (UAW)
7573	4822 130 42675	SM TRANS BC818
7573	5322 130 41982	SM TRANS BC848B
7577	4822 130 42675	BC818 (UAW)
7591	5322 130 41983	BC858B (UAW)
7635	5322 130 41982	BC848B (UAW)
7705	5322 130 41982	BC848B (UAW)
7724	5322 130 41982	BC848B (UAW)
7730	5322 130 41982	BC848B (UAW)
7760	5322 130 41982	BC848B (UAW)










7112	5322 209 14481	HEF4053BT
7212	4822 209 30216	TEA7650M/V4
7250	4822 209 63465	HC10002750
7260	4822 209 30089	UPD6451CX-001
7261	4822 209 60753	TBC M-D
7271	4822 209 63703	TBC-MA3
7274	4822 209 71469	MC1458D
7286	4822 209 71469	MC1458D
7311	4822 209 30091	CXL1009P
7420	4822 209 63698	HA12127ANT
7421	4822 209 63716	NJM2233BD
7500	4822 209 62112	M50423FP
7506	4822 209 70422	MN4264-15
7524	4822 209 83163	LM833N
7534	4822 209 73236	TDA1543/N2
7537	5322 209 14481	HEF4053BT
7543	4822 209 30095	LM833D
7547	4822 209 30095	LM833D
7560	5322 209 14481	HEF4053BT
7567	4822 209 30095	LM833D
7600	4822 209 60626	DSC-M2
7615	4822 209 70691	MC34004P
7701	4822 209 30088	MC68HC11G7/LDP400

# PF06 FRONT PCB

		
CF01	4822 124 23559	10UF/ 50V
CF03	4822 124 23559	10UF/ 50V
		
DF01	4822 130 80326	LT3D8B RED 30
DF02	4822 130 80326	LT3D8B RED 30
DF03	4822 130 33305	1SS176.MA165.1SS254
DF04	4822 130 33305	1SS176.MA165.1SS254
		
IC99	4822 209 63457	FRONT CPU TMP47C670N
		
LF01	4822 157 62898	LAL02TA181J 180UH
LF02	4822 157 62898	LAL02TA181J 180UH
		
QF01	4822 130 60839	2SC2458 Y,GR
QF02	4822 130 42593	DTA124ES (TP)
QF03	4822 130 60839	2SA1048 Y,GR
<b>Various</b>		
SF01	4822 276 12455	TACT SWICH ALPS-SKHV
SF02	4822 276 12455	TACT SWICH ALPS-SKHV
SF03	4822 276 12455	TACT SWICH ALPS-SKHV
SF04	4822 276 12455	TACT SWICH ALPS-SKHV
SF05	4822 276 12455	TACT SWICH ALPS-SKHV
SF06	4822 276 12455	TACT SWICH ALPS-SKHV
SF07	4822 276 12455	TACT SWICH ALPS-SKHV
SF08	4822 276 12455	TACT SWICH ALPS-SKHV
SF09	4822 276 12455	TACT SWICH ALPS-SKHV
SF10	4822 276 12455	TACT SWICH ALPS-SKHV
SF11	4822 276 12455	TACT SWICH ALPS-SKHV
SF12	4822 276 12455	TACT SWICH ALPS-SKHV
SF13	4822 276 12455	TACT SWICH ALPS-SKHV
SF14	4822 276 12455	TACT SWICH ALPS-SKHV
SF15	4822 276 12455	TACT SWICH ALPS-SKHV
SF16	4822 276 12455	TACT SWICH ALPS-SKHV
SF17	4822 276 12455	TACT SWICH ALPS-SKHV
SF18	4822 276 12455	TACT SWICH ALPS-SKHV
SF19	4822 276 12455	TACT SWICH ALPS-SKHV
SF20	4822 276 12455	TACT SWICH ALPS-SKHV
SF21	4822 276 12455	TACT SWICH ALPS-SKHV
SF22	4822 276 12455	TACT SWICH ALPS-SKHV
SF23	4822 276 12455	TACT SWICH ALPS-SKHV
SF24	4822 276 12455	TACT SWICH ALPS-SKHV
SF25	4822 276 12455	TACT SWICH ALPS-SKHV
SF26	4822 276 12455	TACT SWICH ALPS-SKHV
SF27	4822 276 12455	TACT SWICH ALPS-SKHV
SF28	4822 276 12455	TACT SWICH ALPS-SKHV
VF01	4822 130 90942	FIP8JM6 (LD)
XF01	4822 242 73893	6MHZ CERAMIC RESONAT
ZF01	4822 130 81254	GP1U520X 36.0KHZ IR-









# P906 POWER SUPPLY PCB

					
C901	4822 122 33276	DE7150 F 103M 400V	QD01	4822 130 60886	2SC1923 Y
C902	4822 122 33276	DE7150 F 103M 400V	QD02	4822 130 61438	2SA1005 L OR K
C915	4822 124 22239	3300UF 25V RA2 TYPE	QD03	4822 130 60886	2SC1923 Y
C916	4822 124 22239	3300UF 25V RA2 TYPE	QD04	4822 130 61438	2SA1005 L OR K
C934	4822 124 23559	10UF/ 50V	QD05	4822 130 60107	2SA1048 Y,GR
C935	4822 124 23559	10UF/ 50V	QD06	4822 130 60839	2SC2458 Y,GR
			QD07	4822 130 60107	2SA1048 Y,GR
DD01	4822 130 33305	1SS176,MA165,1SS254	QD08	4822 130 60839	2SC2458 Y,GR
DD02	4822 130 33305	1SS176,MA165,1SS254	QD09	4822 130 62548	2SB1185 E OR F
DD03	4822 130 33305	1SS176,MA1650S254	QD10	4822 130 62549	2SD1762 E OR F
DD04	4822 130 33305	1SS176,MA165,1SS254	QD11	4822 130 62548	2SB1185 E OR F
DD05	4822 130 33305	1SS176,MA165,1SS254	QD12	4822 130 62549	2SD1762 E OR F
DD06	4822 130 33305	1SS176,MA165,1SS254	Q901	4822 130 61442	2SD1913 R,S
DD07	4822 130 82422	EX16	Q902	4822 130 61359	2SB1274 R,S
DD08	4822 130 82422	EK16 1.5A/60V S.B.D	Q903	4822 130 60839	2SC2458 Y,GR
DD09	4822 130 82422	EK16 1.5A/60V S.B.D	Q904	4822 130 60839	2SA1048 Y,GR
DD10	4822 130 82422	EK16	Q905	4822 130 61442	2SD1913 R,S
DD52	4822 130 33305	ISS176MA165 ISS254	Q906	4822 130 61359	2SB1274 R,S
D901	4822 130 82425	RBA402 4A/200V BRIDG	Q907	4822 130 61442	2SD1913 R,S
D902	4822 130 82422	EK 1.5A/60V S.B.D	Q908	4822 130 61179	2SD2037 E,F
D903	4822 130 82422	EK 1.5A/60V S.B.D	Q909	4822 130 60839	2SA1048 Y,GR
D904	4822 130 82421	1D3 1A/200V	Q911	4822 130 60839	2SC2458 Y,GR
D905	4822 130 82421	1D3 1A/200V	Q912	4822 130 60839	2SC2458 Y,GR
D906	4822 130 82421	1D3 1A/200V	Q913	4822 130 61417	2SB1240 TV-2 PNP Q,R
D907	4822 130 82421	1D3 1A/200V	Q914	4822 130 61417	2SB1240 Q,R
D912	4822 130 82611	Diode RB152	Q915	4822 130 60839	2SC2458 Y,GR
D913	4822 130 82421	1D3 1A/200V	Q916	4822 130 42683	DTC124ES (TP)
D914	4822 130 82421	1D3 1A/200V	Q917	4822 130 61179	2SD2037 E,F
D915	4822 130 82421	1D3 1A/200V			
D916	4822 130 82421	1D3 1A/200V	RD15	4822 116 60295	47 OHM J 1/4W
D919	4822 130 33305	1SS176,MA165,1SS254	RD16	4822 116 60295	47 OHM J 1/4W
D920	4822 130 33305	1SS176,MA165,1SS254	RD17	4822 116 60295	47 OHM J 1/4W
D922	4822 130 33305	1SS176,MA165,1SS254	RD18	4822 116 60295	47 OHM J 1/4W
D923	4822 130 33305	1SS176,MA165,1SS254	R902	4822 116 82821	1.5 OHM J 1/2W
D924	4822 130 33305	1SS176,MA165,1SS254	R904	4822 111 30006	47 OHM +-5% 1/4W
D925	4822 130 33305	1SS176,MA165,1SS254	R905	4822 111 30006	47 OHM +-5% 1/4W
D926	4822 130 33305	1SS176,MA165,1SS254	R934	4822 116 60307	1 OHM J 1/4W
D927	4822 130 33305	1SS176,MA165,1SS254	R935	4822 116 60307	1 OHM J 1/4W
D928	4822 130 33305	1SS176,MA165,1SS254	R936	4822 115 90166	10Ω 1/4W
D929	4822 130 82421	1D3 1A/200V	R937	4822 052 10478	4R7
D930	4822 130 82421	1D3 1A/200V	R938	4822 116 60307	1Ω 1/4W
D931	4822 130 33305	1SS176,MA165,1SS254	R939	4822 116 60307	1Ω 1/4W
D933	4822 130 82421	1D3 1A/200V			
Fuses			Z903	4822 130 33759	4.7V ZENER EQUIVALEN
F901	4822 253 30027	3.15 A 250V BS LISTE	Z905	4822 130 81729	MTZJ33D
F902	4822 253 30027	3.15 A 250V BS LISTE	Z906	4822 130 80318	6.8V ZENER EQUIVALEN
F903	4822 253 30206	2 A 250V BS LISTED	Z907	4822 130 80316	3.6V ZENER EQUIVALEN
			Various		
IC86	4822 209 71902	NJM 78L12A	L902	4822 280 20467	RELAY UB-5MBU
IC87	4822 209 73524	NJM 79L12A	F901	4822 252 26288	thermal fuse MF-R135
			F902	4822 252 26288	thermal fuse MF-R135
LD01	4822 157 62926	S0627 2.6MH 1A			
LD02	4822 157 62926	S0627 2.6MH 1A			
LD03	4822 526 10543	Ferrite bead.			
LD04	4822 526 10543	Ferrite bead.			



# P106 SERVO PCB

		
C131	4822 124 21736	1UF/50V
		
D101	4822 130 33305	1SS176,MA165,1SS254
D102	4822 130 33305	1SS176,MA165,1SS254
D104	4822 130 33305	1SS176,MA165, 1SS25
		
IC20	4822 290 60997	HA11529NT (SERVO)
IC21	4822 209 61187	BA15218
IC22	4822 209 61187	BA15218
IC23	4822 209 61187	BA15218
IC24	4822 209 61187	BA15218
IC25	4822 209 61379	CXA1081Q
IC26	4822 209 83839	UPD4053BC
IC27	4822 209 83654	NJM4556D
IC28	4822 209 83654	NJM4556D
IC29	4822 209 61187	BA15218
		
Q101	4822 130 42683	DTC124ES(TP)
Q102	4822 130 42683	DTC124ES (TP)
Q103	4822 130 42683	DTC124ES (TP)
Q104	4822 130 42593	DTA124ES (TP)
Q105	4822 130 60839	2SC2458 Y,GR
Q106	4822 130 42683	DTC124ES (TP)
Q108	4822 130 61417	2SB1240 Q,R
Q110	4822 130 42683	DTC124ES (TP)
Q111	4822 130 42683	DTC124ES(TP)
Q201	4822 130 62547	STA451C
Q202	4822 130 62547	STA451C
Q281	4822 130 60839	2SC2458 Y,GR
Q282	4822 130 60839	2SC2458 Y,GR
		
R123	4822 100 11373	4.7KOHM RH0634CS3R T
R124	4822 100 11373	4.7KOHM RH0634CS3R T
R133	4822 100 11351	10K OHM RH634CJ4R TY
R152	4822 116 60422	2.2 OHM +-5% 2W
R159	4822 116 60295	47 OHM +-5% 1/4W
R174	4822 100 11352	22KOHM RH0634CJ4R TY
R178	4822 100 11386	1K OHM RH634CJ4R TYP
R196	4822 116 60422	2.2 OHM +-5% 2W
R199	4822 116 60295	47 OHM +-5% 1/4W
R226	4822 116 60295	47 OHM +-5% 1/4W
R229	4822 116 60421	2.2 OHM +-5% 1W
R255	4822 100 11471	100KOHM RH0634C15R T
R273	4822 116 60295	47 OHM +-5% 1/4W
R276	4822 116 60421	2.2 OHM +-5% 1W
R286	4822 100 11386	RH0634CS2R TYPE 1K O
R231,R232	4822 116 83036	27Ω 1/4W
R235,R236	4822 116 83036	27Ω 1/4W
R233,R234	4822 116 60307	1Ω 1/4W
R237,R238	4822 116 60307	1Ω 1/4W
		
Z101	4822 130 80316	3.6V ZENER

## SERVICE TOOLS

TEST STAND	4822 395 90896
TURNTABLE ADJUST.	4822 395 80389
3 P EXT. CABLE	4822 321 61071
11P EXT. CABLE	4822 321 61072
12P EXT. CABLE	4822 321 61073
24P FLAT CABLE	4822 321 61124
VIDEO TEST DISC	4822 397 30207
CD TEST DISC 5A	4822 397 30096
1,5 mm HEX Wrench	4822 395 50081